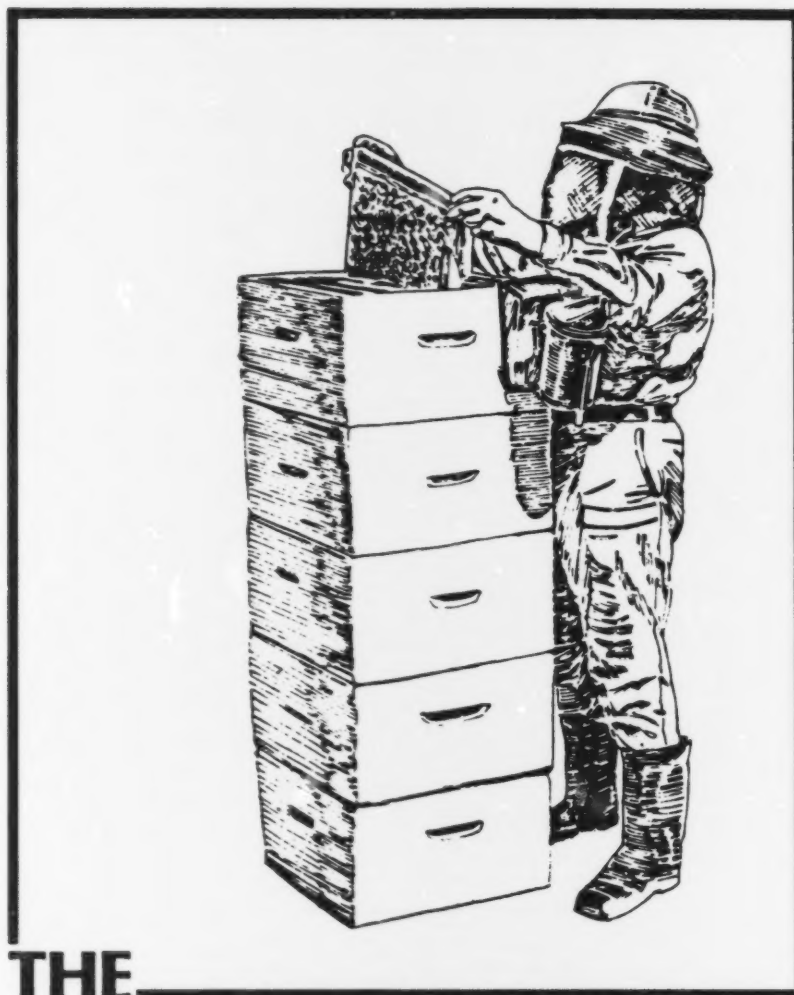




THE
ECONOMICS
of BEEKEEPING

in Alberta 1980

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THE ECONOMICS OF BEEKEEPING IN ALBERTA

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FOREWORD

Alberta accounted for over 30 per cent of the honey produced in Canada last year. With 1800 registered apiarists in the province, beekeeping receipts reached \$14.6 million in the 1980 crop year, up 9.1 per cent from 1979. Approximately 15 per cent of the crop was used within the province, 55 per cent was sold to other provinces, and 30 per cent exported primarily to the United States and Japan.

Although Alberta produces a very high quality of honey, commercial beekeepers are greatly concerned about rising production costs and the impact of these costs on the viability of their industry. They recognize that if Alberta is to maintain and possibly expand its share of the domestic and export markets, apiarists have to become more economically efficient. But apart from a 1977 Consensus Research Data report, there is a general dearth of economic data regarding beekeeping in Alberta.

This report is the second of a three year study of the economics of beekeeping in Alberta. It provides a detailed listing of investment and operating costs, and the associated production and receipts for the 1980 crop year. With more commercial apiarists expressing interest in wintering bees, this report suggests that there is a decided economic advantage to wintering bees in Alberta. In a year when low yields resulted in losses to non-wintering beekeeping operations, most wintering operations showed a profit.

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Lloyd Andruchow

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SECTION I

INTRODUCTION

The Alberta Honey Costs and Returns Survey was initiated by the Production Economics Branch on a provincial basis in the spring of 1979. Commercial beekeepers represent approximately 10 per cent of the 1700 apiarists in Alberta. They expressed concern about rising production costs and the economic viability of the beekeeping industry. In general, there is a lack of accurate input/output and costs/returns information associated with beekeeping in Alberta. Consequently, beekeepers requested through one of their organizations, the Alberta Beekeepers' Association (ABA), that the Production Economics Branch of Alberta Agriculture undertake a study of the economics of beekeeping in Alberta.

From discussions with the President and Directors of the ABA, it was agreed that the study would be provincial in scope and would cover three production years. The following report summarizes the results of the second study year, 1980. A total of 69 apiarists with varying sizes of operation provided detailed information for this study and it is from their contributions that the basis of this report was formulated. A similar report summarizing the 1979 study (based on 74 apiary records) was published in March, 1981.

Objectives

The primary objective of the report is to provide the Alberta Beekeepers Association, the Provincial Apiarist, Alberta Agriculture personnel and the general public with factual cost of production information. More specific objectives of the study were to:

1. Determine the production costs and returns associated with beekeeping;
2. Determine the physical input/output relationships in beekeeping;
3. Show how variation in size of operation affects net returns;
4. Identify the main production/marketing problems of producers and the industry;

5. Provide each apiarist who participated in the study with a detailed analysis of his beekeeping operation and an opportunity to compare his operation to the group average;
6. Study the economics of overwintering bees as compared to the purchase of package bees;
7. Assist the apiarist with budgeting and planning;
8. Observe regional differences in the costs and returns of honey production;
9. Recommend possible ways of reducing costs and increasing returns to beekeeping;
10. Provide an up-to-date economic report on honey production to assist government policy formulation.

The Study Sample and Survey Method

When the study was initiated in the spring of 1979, the Statistics Branch of Alberta Agriculture was asked to assist with the selection of a sample of apiarists. The stratified random sampling technique was used in selecting apiarists from a list of approximately 1800 names of beekeepers operating in the province. A 5 per cent sample was chosen and stratified by size and location. Approximately 100 apiarists were selected for the study and were telephoned to verify their participation. To assist with the collection and recording of detailed information, a questionnaire was subsequently developed. Seventy-four (74) participants were able to provide cost data for a complete economic analysis for the 1979 production year.

It is worth mentioning that 47 participants from the 1979 study were retained for study in 1980. There were no changes made to the questionnaire and computer package, thereby, allowing participants to compare the performance of their apiaries over time. Sixty-nine (69) participants were able to provide cost data for a complete economic analysis for the 1980 production year.

The apiarists selected in the sample were informed during the early stages of the 1980 production year about the information required for the study. They were also asked to keep a record of their travel costs and labor hours. A staff member visited the study participants

during the 1980 - 81 winter to aid completion of the questionnaires which were then analyzed by a computer program designed by the Systems Design Branch of Alberta Agriculture.

Honey Production in Alberta

The following table provides a historical summary of the number of beekeepers, colonies, production per colony and price of honey in Alberta. This information shows the growth in the industry and the increase in the price of honey over the years.

TABLE 1: STATISTICAL DATA ON HONEY PRODUCTION IN ALBERTA 1924-1981¹

<u>Year</u>	<u>Number Of Beekeepers'</u>	<u>Number Of Colonies</u>	<u>Production Per Colony(lbs.)</u>	<u>Price Per Pound (¢)</u>
1924	160	-	-	25
1930	170	4450	222	10
1935	1000	13060	84	9
1940	2200	22000	101	11
1945	10000	63000	95	15
1950	4250	49000	99	13
1955	1270	35200	131	16
1960	1670	54900	138	15
1956	1320	114000	176	15
1970	1200	110000	184	14
1971	1200	115000	196	19
1972	1200	130000	154	30
1973	1300	145000	150	45
1974	1800	156000	114	41
1975	2000	160000	128	37
1977	1800	165000	130	43
1978	1800	160000	125	51
1979	1700	150000	150	57
1980	1800	160000	141	58
1981	1700	170000	116	-

¹Data provided by the Statistics Branch, Alberta Agriculture.

Table 2 shows regional honey production in Alberta: the figures represent an averaging of statistical data from 1977 to 1981.

TABLE 2: HONEY PRODUCTION IN ALBERTA BY REGION - AVERAGE OF 1977-1981

<u>Region</u>	<u>Number Of Beekeepers'</u>	<u>Colonies</u>	<u>Number of Colonies Per Beekeeper</u>	<u>Yield Per Colony (lbs.)</u>
Southern	138	17600	128	140
Central	570	16800	30	120
Northern	853	66800	78	123
Peace River	199	59800	301	155
Province	1760	161000	537	136

Large commercial honey producers are situated in the Peace River Region where honey production - yield per hive - has been the highest relative to the other regions in the Province. The number of colonies per beekeeper ranged from 30 in Central Alberta to 301 in the Peace River Region. Eleven (11) per cent of Alberta's beekeepers are in the Peace River Region and they produced 37 per cent of Alberta's honey in 1980. Their average production per hive in 1980 was 172 pounds as compared to 133 pounds, 125 pounds, and 113 pounds for the Southern, Northern and Central Regions, respectively.

Factors Affecting Honey Production

Honey production per hive over the last 55 years has ranged from 84 pounds per colony to 222 pounds per colony. This wide range in production is mainly due to prevailing weather conditions during the honey flow season and the general performance of the bees. Another factor which may determine production is the location of the bee yard, as protection from the wind is required. Also, locating the bees in areas where forage crops and other flowering plants are quite common is of primary importance. For example, willow and dandelion are important sources of pollen and nectar during the spring build-up of colonies,

while crops like rapeseed, alfalfa, clovers and fireweed are the major sources of nectar in the summer and fall.

As the duration and timing of flowering vary in the different regions of the province so does the nectar flow. Other factors affecting nectar flow are the amount of pasture and weather. Best honey yields have been recorded under warm sunny days and cool night conditions during the honey flow period. Honey yields were lower in 1980 as compared to 1979 in all four regions, with the most noticeable decline in Southern Alberta where the average yield was 133 pounds per hive in 1980 versus 165 pounds per hive in 1979. Generally speaking, dry spring and fall conditions in 1980 plus the plowdown of pasture crops in the Peace River region, were all factors affecting the honey crop. The increase in the number of hives in Alberta in 1980 (160000 in 1980 and 150000 in 1979), more than offset the lower production per hive as Alberta's total honey production in 1980 was 22.7 million pounds as compared to 22.6 million pounds in 1979.

Method of Analysis

The costs and returns data provided in this report are based on the number of hives or colonies. In the various group analyses, costs were calculated on a per hive basis for each category, by dividing the sum of all expenses by the number of hives in the group. In some cases, certain cost items were not incurred in the individual operation. As such, costs per unit for different inputs were averaged to determine the costs per hive or hundredweight of honey produced.

Returns from honey sales were divided into four categories:

1. honey sold to the Co-op;
2. honey sold to the wholesaler;
3. honey sold at the retail level (farm and off-farm);
4. other honey sales.

Producers estimated their total returns from honey sales when such returns were not received at the time of data collection. This approach was especially used for the honey sold to the Co-op as final payments had not been received. Wax and pollen sales were recorded at the value received.

Investment and cost information were collected on a fairly detailed basis as this facilitated easier processing and interpreting of data. Investment was categorized into four sections: land, buildings, honey equipment, and transportation. Beekeepers on the study provided the purchase price or market value for each item, as well as, indicated its percentage of use to the apiary enterprise and its expected life for depreciation purposes.

Operating cost data were valued at the actual prices paid by each operator. The significance of hired labor generally increased as size of operation increased. The use of hired labor was fragmented to reflect the importance of labor for different segments of the apiary operation. These were hive preparation; inspecting, feeding, moving; supering-pulling honey; killing-returning; and wintering. The average hourly wage for hired labor in 1980 was \$5.42/hour. Interest on operating capital was calculated using 13 per cent for a six month period. Depreciation on investment items was transferred from the investment page to the operating cost schedule.

Operator and unpaid family labor were also recorded by type of work done, namely, hive preparation; inspecting, feeding, moving; supering-pulling honey; killing-returning; and wintering. The hourly rate for operator and family labor were provided by the apiarist, ranging from \$6.00 to \$7.50 per hour. The group average operator wage rate was \$6.59 per hour and \$4.49 per hour for family labor. Interest on fixed investment was calculated by applying an interest rate of 10 per cent to the average value of the investment item over its life. Total production cost was determined by the summation of operating costs, cost of unpaid labor and interest on investment.

SECTION II

SUMMARY OF COSTS AND RETURNS FOR THE STUDY SAMPLE

Returns From Honey Sales

The average age and years of experience in honey production for the 69 honey participants was 41 years and 14.2 years, respectively. Honey produced for sale by the average apiarist was 87,366.7 pounds which is an average of 148 pounds per hive for the 593 hives managed. The average operation also produced 807.95 pounds of wax and 2.46 pounds of pollen.

With honey yields ranging from a low of 113 pounds per hive in Central Alberta to a high of 172 pounds per hive in the Peace River Region in 1980, study participants realized a considerable range in returns. Also, the price received per pound varied due to sales to the Co-op, wholesaler, and farm and off-farm retailing. Honey sales to the Co-op were reported to average 55.5 cents per pound while sales to the wholesaler averaged 57.7 cents per pound. Honey sold at the retail level either farm or off-farm averaged 76.0 cents per pound. Miscellaneous honey sales of smaller quantities were reported at an average of 62.0 cents per pound. Wax and pollen sales averaged \$2.25 and \$2.95 per pound, respectively.

Total returns for the typical honey producer in 1980 with 593 hives averaged \$51954.69 for the total enterprise or \$87.69 per hive. This is equivalent to \$59.15 cents per pound of honey sold. Table 3 summarizes the returns from honey production via the various marketing channels.

Investment Costs

The investment schedule (Table 4) was divided into four sections: land, buildings, honey equipment, and transportation equipment. Land associated with the honey operation was assessed at market value and in some cases an upper limit of \$2000 per acre was used as an agricultural value. An interest rate of 10 per cent was used in

TABLE 3

SUMMARY OF RETURNS

	<u>Pounds</u>	<u>Per Hive(lb.)</u>	<u>\$/Lb.</u>	<u>Total (\$)</u>	<u>Per Hive(\$)</u>	<u>¢/Lb. Produced</u>
Honey Sold to	48195.97	81.342	0.55	26719.82	45.10	30.42
Co-op	1391.84	2.349	0.56	779.43	1.32	0.89
Honey Sold to	28485.49	48.076	0.58	16388.20	27.66	18.66
Wholesaler	3986.96	6.729	0.59	2345.66	3.96	2.67
Farm and Off-Farm Retailing	4179.95	7.055	0.76	3197.64	5.40	3.64
Other Honey Sales	1126.48	1.901	0.62	701.18	1.18	0.80
Wax Sales	807.95	1.364	2.25	1815.48	3.06	2.07
Pollen Sales	2.46	.004	2.95	7.28	0.01	0.01
TOTAL RECEIPTS	88177.10	148.823		51954.69	87.69	59.15

calculating the opportunity cost of the money invested in land. The average (593 hives) operation in the study utilized 3.18 acres of land with an average market value of \$1051.30 per acre.

Building investment costs were provided on a fairly detailed basis and as many as nine buildings were reported by some apiarists. The study participants indicated the percentage of use of each building to the honey operation, as well as, the life expectancy; the salvage value was assumed to be 10 per cent. The average honey operator on study reported a building investment of \$30475.07 or \$51.43 per hive. The buildings were depreciated over the life expectancy and an opportunity cost calculated to arrive at the total investment costs.

The third category of investment was the specialized honey equipment which again was reported in a fairly detailed manner. Assuming a 10 per cent salvage value, the honey equipment was depreciated over a specified time period with the exception of the brood honey for which only an opportunity cost of 10 per cent was calculated. Brood honey can be recovered at any time and sold, and therefore does not depreciate in value. The average operation had invested \$90080.87 in honey equipment or \$152.03 per hive.

As many as eight transportation vehicles were reported by some apiarists. After indicating the percentage of use, salvage value

and life expectancy for each unit, their depreciation and interest costs were calculated accordingly. The group average transportation investment was \$14692.11 or \$24.80 per hive. Table 4 summarizes in detail the investment items for the average apiary on study.

APIARY ENTERPRISE INVESTMENT

1980

TABLE 4:

	Enterprise Value	Years Life	Depreciation	Interest
Land (A)	3344.21	-	-	334.42
Land (B)	0.05	-	-	0.01
TOTAL LAND INVESTMENT	3344.26	-	-	334.43
Buildings 1	14635.61	23.58	558.50	804.96
Buildings 2	4810.03	23.12	187.27	264.55
Buildings 3	2544.85	23.03	99.45	139.97
Buildings 4	3134.61	22.71	124.23	172.40
Buildings 5	3349.29	19.60	153.79	184.21
Buildings 6	1924.78	25.42	68.16	105.86
Buildings 7	72.46	10.00	6.52	3.99
Buildings 8	2.90	17.50	0.15	0.16
Buildings 9	0.58	14.00	0.04	0.03
TOTAL BUILDING INVESTMENT	30475.07		1198.11	1676.13
Hives	65337.05	18.88	3114.78	3593.54
Brood Honey	7440.41	-	-	744.04
Honey Extractors	2890.61	20.47	127.09	158.98
Dryers	464.28	17.30	24.15	25.54
Uncapping Machines	794.52	16.38	43.66	43.70
Honey Tanks and pipes	655.80	21.37	27.62	36.07
Pumps and Motors	573.74	12.17	42.44	31.56
Wax Melter	455.47	17.40	23.56	25.05
Boiler - Furnace	838.96	14.79	51.05	46.14
Water System	630.41	21.22	26.74	34.67
Compressor	153.92	12.55	11.04	8.47
Fuel Tank	241.73	20.16	10.79	13.30
Drums	642.13	9.11	63.43	35.32
Pressure Washer	123.98	9.85	11.33	6.82
Blower	197.16	9.09	19.52	10.84
Refractometer	50.35	18.00	2.52	2.77
Scales	256.59	18.74	12.32	14.11
Hive Loader	817.81	15.04	48.93	44.98
Super Elevator	144.13	18.47	7.03	7.93
Hive Feeders	1034.09	11.27	5.59	56.87
Feed Tank	254.57	15.00	5.27	14.00
Microscope	49.38	28.20	1.58	2.72
Staplers	94.89	15.19	5.62	5.22
Saws, Welder	792.12	14.65	48.65	43.57

TABLE 4 cont'd.

APIARY ENTERPRISE INVESTMENT - Cont'd

	Enterprise Value	Years Life	Depreciation	Interest
Shockers	209.55	8.21	22.96	11.53
Fencer	211.90	11.19	17.04	11.65
Office Equipment	268.59	14.74	16.40	14.77
Pallets	1477.08	11.36	117.01	81.24
Lawn Mower	271.63	10.46	23.36	14.94
Misc. Equipment	1960.97	13.42	131.46	107.85
Other	96.52	15.00	5.79	5.31
Other	-	-	-	-
Wintering Equipment	650.61	-	81.89	33.43
TOTAL BEE EQUIPMENT	90080.87	-	4237.61	5286.85
Trans 1 -----	4658.19	9.61	289.23	352.10
Trans 2 -----	3563.49	9.13	263.32	257.78
Trans 3 -----	1972.39	8.09	188.02	141.30
Trans 4 -----	1345.94	8.67	101.81	103.63
Trans 5 -----	1800.72	10.00	118.91	126.17
Trans 6 -----	380.38	8.00	49.49	21.20
Trans 7 -----	971.01	12.00	80.31	43.91
Trans 8 -----	-	-	-	-
TOTAL TRANS. VEHICLES	14692.11		1091.10	1051.09
TOTAL INVESTMENT	138592.25		6526.82	8348.50

Table 5 shows the summary of investment (interest and depreciation) costs for the 69 honey producers on study. The average apiarist on study with 593 hives had an investment of approximately \$138592.25 in his honey operation or \$233.91 per hive. His total depreciation on buildings and equipment was \$6526.82 or \$11.01 per hive and 7.4 cents per pound of honey sold. Opportunity cost, calculated on the average value of investment amounted to \$8348.50 or \$14.08 per hive and 9.5 cents per pound of honey sold. Thus, total investment costs for the average apiarist was \$25.09 per hive or 16.9 cents per pound of honey sold.

As a proportion of total investment, the hive and brood honey represented the apiarists' largest investment at \$122.83 per hive or 52.5 per cent of the total investment. The second highest investment was the honey house and miscellaneous buildings representing 22 per cent of the total investment. Other categories of investment were land (2.4 per cent), miscellaneous honey equipment (12.5 per cent) and transportation vehicles (10.6 per cent).

TABLE 5

SUMMARY OF INVESTMENT

	Enterprise		Depreciation			Interest		
	\$ Total	\$/Hive	\$ Total	\$/Hive	¢/lb. Honey	\$ Total	\$/Hive	¢/lb. Honey
Land	3344.26	5.64	-	-	-	334.43	.56	0.4
Buildings	30475.07	51.43	1198.11	2.02	1.4	1676.13	2.83	1.9
Equipment	90080.87	152.04	4237.61	7.15	4.8	5286.85	8.92	6.0
Transportation	14692.11	24.80	1091.10	1.84	2.0	1051.09	1.77	1.2
TOTAL	138592.25	233.91	6526.82	11.01	7.4	8348.50	14.08	9.5

Operating Costs

By definition, operating costs (Table 6), include all out-of-pocket expenditures, a calculated interest cost on these cost expenditures, and an allowance for depreciation. In the short run, returns should be sufficient to cover operating costs if viability of the operation is to be maintained. The study participants indicated the expected life for two operating cost items - bees purchased and freight, and small tools and equipment. This was necessary to accommodate operations that carried on a wintering bee program for which the cost of bees and freight were spread over more than one year. The average life for small tools and equipment was reported to be 2.67 years. Other cost expenditures were taken directly from the year-end operating costs statement.

The expenditure for bees and freight accounted for 25 per cent of the operating costs averaging \$16.11 per hive or 10.86 cents per pound of honey sold. Depreciation on investment items averaged \$11.02 per hive or 7.43 cents per pound of honey sold representing 16.9 per cent of the operating costs.

The significance of hired labor generally increased with size of operation. Most of the hired labor was required during the late summer for supering and pulling honey. Shown on Table 7 are the total labor requirements and costs for the study group. The average apiarist paid \$9.83 per hive or 6.63 cents per pound of honey for hired labor, representing 15.1 per cent of the operating costs.

TABLE 6:

SUMMARY OF OPERATING COSTS - 1980

	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Bee Purchases	9.97	14.79
Freight	0.89	1.32
Fuel for Vehicles	1.83	2.71
Repairs for Vehicles	1.63	2.42
Registration, Insurance	0.56	0.83
Cargo Insurance	0.13	0.20
Feeding Costs - Honey	0.62	0.92
- Sugar	3.18	4.72
- Icing Sugar	0.04	0.05
- Other	0.09	0.13
Cyanogas	0.05	0.07
Bee Repellant	0.13	0.20
Veterinarian, Medicine	0.23	0.34
Repairs - Hive, Buildings	1.64	2.43
Fuel - Heating	0.56	0.83
Containers, Labels, Tags	0.50	0.74
Small Tools, Equipment	0.30	0.44
Yard Rental	0.77	1.14
Weed Control	0.04	0.06
Property Tax	0.10	0.15
Business Tax	0.01	0.01
Labor Insurance, Benefits	0.35	0.51
Building & Equipment Insurance	0.52	0.76
Product Insurance	0.03	0.05
Promotion, Advertising, Marketing Fees	0.61	0.90
Subscriptions, Assoc. Dues, Meetings	0.36	0.54
Other	0.62	0.92
Hired Labor - Hive Preparation	0.85	1.26
- Inspect, Feed, Move	0.95	1.40
- Supering, Pull Honey	3.57	5.30
- Kill, Return	1.02	1.51
Miscellaneous - Accounting, Legal	0.34	0.50
- Office Supplies	0.05	0.08
- Telephone	0.22	0.33
- Power	0.42	0.62
- Service Charges	0.03	0.04
- Other	0.08	0.11
Wintering Bees - Honey	0.23	0.41
- Sugar	1.51	2.24
- Icing Sugar	0.01	0.01
- Other	0.00	0.01
- Hired Labor	0.24	0.36
Interest on Operating Capital(13% for 1/2 year)	1.15	1.70
Depreciation	7.43	11.02
TOTAL OPERATING COSTS	43.91	65.09

Other significant operating costs were the vehicle operation costs (fuel, repairs, licenses) and also the feed costs (sugar, icing sugar) which accounted for 9.6 per cent and 9.0 per cent of the operating costs, respectively. Expenditure for bees and freight, hired labor, depreciation, feed, and vehicle operation accounted for 75.7 per cent of the total operating costs. Table 6 summarizes all operating costs.

TABLE 7: SUMMARY OF LABOR USE AND COST - 1980

<u>HIRED LABOR</u>	<u>HOURS</u>	<u>\$/HOUR</u>	<u>¢/POUND</u>
Hive Preparation	139.94	5.84	0.85
Inspecting, Feeding,			
Moving	151.52	5.92	0.95
Supering, Pulling Honey	617.91	5.14	3.57
Kill, Return	175.70	5.41	1.02
Wintering	32.15	6.57	0.24
SUB TOTAL	1172.20		6.63
OPERATOR LABOR			
Hive Preparation	157.12	7.39	1.19
Inspecting, Feeding,			
Moving	212.60	6.53	1.57
Supering, Pulling Honey	350.04	6.47	2.61
Kill, Return	117.01	6.56	0.88
Wintering	67.90	5.63	0.44
SUB TOTAL	904.67		6.69
<u>FAMILY LABOR</u>			
Hive Preparation	48.76	4.28	0.26
Inspecting, Feeding,			
Moving	64.00	5.72	0.32
Supering, Pulling Honey	167.10	4.09	0.83
Kill, Return	31.18	4.41	0.16
SUB TOTAL	311.04		0.74
TOTAL LABOR	2387.91		14.06

Operating costs for honey production for the study group in 1980 averaged \$65.09 per hive or 43.91 cent per pound.

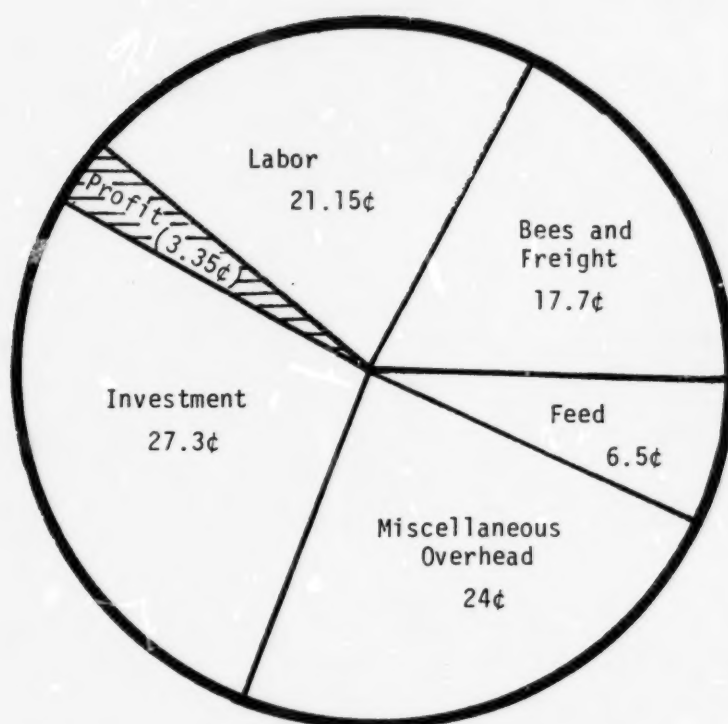
Summary of Total Production Costs

Returns that do not cover total production costs will force the operator to take a lower return for his investment and labor, thereby, forcing him to shift resources to more profitable activities. Operating costs, plus the value placed on unpaid family and operator labor plus the opportunity cost on investment equals total production costs. Table 8 provides a summary of all production costs.

The value of unpaid operator labor in 1980 was \$9.93 per hive or 6.70 cents per pound of honey sold. Approximately 39 per cent of the operator's labor was utilized during the honey flow season. Unpaid family labor was calculated to be \$2.33 per hive for the study group or 1.6 cents per pound of honey. Interest on fixed investment amounted to \$14.09 per hive or 9.5 cents per pound of honey sold. The total cost of production for honey for the study group in 1980 was \$91.42 per hive or 61.67 cents per pound.

Total returns from honey and related sales less total production costs equals return to management or profit. The study group in 1980 had insufficient returns to cover their total production costs. Their estimated return to management was -2.52 cents per pound of honey sold or -\$3.74 per hive. Return over cash costs defined as the returns less operating costs plus depreciation was 22.67 cents per pound (\$33.61 per hive). Return to unpaid labor and management -returns less total costs plus unpaid labor- was 5.74 cents per pound (\$8.50 per hive). Returns to investment equals total returns less total costs plus interest on investment, was computed to be 6.98 cents per pound or \$10.35 per hive. Percentage return to investment equals return to investment divided by total investment per hive and multiplied by 100. That is, \$10.35 divided by \$233.91 or 4.3 per cent. Tables 8 and 9 summarize the costs and returns for the study group.

Figure 1 breaks down each dollar received from honey sales into the various expenditures and net income categories for the study sample.



¹Since honey's returns were short of covering total production costs, it was assumed that the operator would take a lower wage for his labor. Therefore, the negative return to management (-3.35 cents out of every dollar) is shown as being taken out of the labor pie.

FIGURE 1: DIVISION OF THE HONEY DOLLAR

Table 10 shows the price of honey that was required to cover the cost components experienced by the group of apiarists surveyed. Cash costs, investment costs, and unpaid labor accounted for 59.2 per cent, 27.3 per cent and 13.5 per cent of the total production costs, respectively.

TABLE 8: SUMMARY OF COSTS AND RETURNS - 1980 (GROUP AVERAGE)

<u>Receipts</u>		
Number of Hives	592.51	
Yield (Pounds per Hive)	148.24	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	57.08	84.62
Wax Sales	2.07	3.06
Pollen Sales	0.01	0.01
TOTAL RECEIPTS	59.15	87.69
Bee Purchases	9.97	14.79
Freight	0.89	1.32
Fuel for Vehicles	1.83	2.71
Repairs for Vehicles	1.63	2.42
Registration, Insurance	0.56	0.83
Cargo Insurance	0.13	0.20
Feeding Costs - Honey	0.62	0.92
- Sugar	3.18	4.72
- Icing Sugar	0.04	0.05
- Other	0.09	0.13
Cyanogas	0.05	0.07
Bee Repellant	0.13	0.20
Veterinarian, Medicine	0.23	0.34
Repairs - Hive, Buildings	1.64	2.43
Fuel - Heating	0.56	0.83
Containers, Labels, Tags	0.50	0.74
Small Tools, Equipment	0.30	0.44
Yard Rental	0.77	1.14
Feed Control	0.04	0.06
Property Tax	0.10	0.15
Business Tax	0.01	0.01
Labor Insurance, Benefits	0.35	0.51
Building & Equipment Insurance	0.52	0.76
Product Insurance	0.03	0.05
Promotion, Advertising, Marketing Fees	0.61	0.90
Subscriptions, Assoc. Dues, Meetings	0.36	0.54
Other	0.62	0.92
Hired Labor - Hive Preparation	0.85	1.26
- Inspect, Feed, Move	0.95	1.40
- Supering, Pull Honey	3.57	5.30
- Kill, Return	1.02	1.51
Miscellaneous - Accounting, Legal	0.34	0.50
- Office Supplies	0.05	0.08
- Telephone	0.22	0.33
- Power	0.42	0.62
- Service Charges	0.03	0.04
- Other	0.08	0.11
Wintering Bees - Honey	0.23	0.41
- Sugar	1.51	2.24
- Icing Sugar	0.01	0.01
- Other	0.00	0.01
- Hired Labor	0.24	0.36
Interest on Operating Capital(13% for 1year)	1.15	1.70
Depreciation	7.43	11.02
TOTAL OPERATING COSTS	43.91	65.09
Operator Labor - Hive preparation	1.19	1.77
- Inspect, Feed, Move	1.57	2.33
- Super, Pull Honey	2.61	3.87
- Kill, Return	0.88	1.31
Family Labor - Hive Preparation	0.26	0.39
- Inspect, Feed Move	0.32	0.47
- Super, Pull Honey	0.83	1.23
- Kill, Return	0.16	0.24
Operator Labor with Wintering Bees	0.44	0.65
Interest on Fixed Investment	9.51	14.09
TOTAL COSTS	61.67	91.42
Return Over Cash Costs	22.67	33.61
Return to Unpaid Labor, Management	5.74	8.50
Return to Management	-2.52	-3.74
Return to Investment	6.98	10.35

TABLE 9: SUMMARY OF APIARY ENTERPRISE COSTS AND RETURNS - GROUP AVERAGE (69 PARTICIPANTS)

RECEIPTS	Pound	\$/Lb.	Total	Per Hive	Per Cwt. Honey
Honey Sold to Co-op	48195.97 1391.84	0.55 0.56	26719.82 779.43	45.10 1.32	30.42 0.89
Honey Sold to Wholesaler	28485.49 3986.96	0.58 0.59	16388.20 2345.66	27.66 3.96	18.66 2.67
Farm and Off-Farm Retailing	4179.95	0.76	3197.64	5.40	3.64
Other Honey Sales	1126.48	0.62	701.18	1.18	0.80
Wax Sales	807.95	2.25	1815.48	3.06	2.07
Pollen Sales	2.46	2.95	7.28	0.01	0.01
TOTAL RECEIPTS			\$51954.69	\$87.69	\$59.15
Total Operating Costs			38567.53	65.09	43.91
Total Costs			54168.78	91.42	61.67
Return Over Cash Costs			19913.98	33.61	22.67
Return to Unpaid Labor, Management			5038.66	8.50	5.74
Return to Management			-2214.09	-3.74	-2.52
Return to Investment			6134.40	10.35	6.98

Operator's Age 44.88
Years of Experience 14.41
Number of Hives 503.82
Honey Produced for Sale 9350.94 lbs.
Wax Produced 1829.77 lbs.
Pollen Produced 5.41 lbs.

TABLE 10: PRICE OF HONEY REQUIRED TO COVER:

Cash Costs	36.48¢/lb.
Depreciation	7.43¢/lb.
Interest on Investment	9.51¢/lb.
Operator-Family Labor	8.25¢/lb.
TOTAL COSTS	61.67¢/lb.
Less Value of Wax and Pollen/lb. of Honey	2.08¢/lb.
Price of Honey to cover Total Costs	59.59¢/lb.

Table 11 shows the effect of yield on price per pound of honey sold to cover total production costs, and assumes that production costs per hive (\$91.42) remains the same for different production levels. The importance of proper hive management and locating the apiary in an area where high production can be obtained cannot be over-emphasized. The relatively higher honey production obtained in Northern Alberta justifies the high density and large apiaries that exist in that area.

TABLE 11: EFFECT OF YIELD ON PRICE PER POUND REQUIRED
TO COVER TOTAL COSTS:

<u>Yield/Hive</u>	<u>Cents/lb. To Cover Total Costs</u>
100	89.34
115	77.69
130	68.72
148.2	60.28
160	55.84
175	51.15
190	47.02
205	43.58

SECTION III

EFFECT OF SIZE OF OPERATION

To determine whether the size of operation had any effect on net returns, study participants were divided by size of operation into six categories. The size groups analyzed on the basis of number of hives were: less than 10; 10-99; 100-399; 400-699; 700-999; and 1000 and over.

A general characteristic of agricultural enterprises is that the production unit becomes more efficient as the scale of operation increases. Beyond a certain size, diseconomies to scale usually occur as a result of limitations in management, labor, equipment, etc. As the size of operation increases, cost savings can be expected in the areas of operation and fixed investment components. For example, specialized bee equipment costs will be spread over a wider base as the number of hives increase. Operating cost savings can come about from the use of larger equipment, bulk buying, and more efficient use of labor and management. Lower production costs per pound of honey with increased size would result in increased returns to management.

Returns From Honey Sales by Size

Production of honey per hive is tabulated in Table 12 for each of the six size categories. The production of honey per hive generally increased as the size of operation increased. The average yield for the three size classes with less than 400 hives was 121.7 pounds per hive and compares with 143.3 pounds per hive for operations with 400 hives and over. Returns per pound of honey sold generally decreased as size of operation increased. This is as a result of less direct retailing as the size of operation increased. To illustrate, the average price received per pound of honey sold was 78.65 cents, 61.58 cents, and 58.11 cents for operations with fewer than 100 hives, between 100 and 699 hives, and over 700 hives, respectively.

TABLE 12:

SUMMARY OF COSTS AND RETURNS BY SIZE OF OPERATION

1980

	GROUP AVERAGE	LESS THAN 10 HIVES	10 - 99 HIVES	100 - 399 HIVES	400 - 699 HIVES	700 - 999 HIVES	OVER 1000 HIVES
YIELD (LBS PER HIVE)	148.24	120.40	107.26	137.39	123.12	151.04	155.66
RECEIPTS	-	-	-	-	-	-	-
Honey Sales	57.08	75.42	78.49	59.30	58.65	56.10	56.27
Wax Sales	2.07	1.51	1.89	3.46	1.74	1.80	2.03
Pollen Sales	.01	0	0	0	0	.03	0
TOTAL RECEIPTS	59.15	76.93	80.38	62.76	60.40	57.93	58.29
OPERATING COSTS	10.86	47.64	17.48	11.23	13.57	11.51	9.28
Bees and Freight	4.15	5.94	5.79	6.33	4.65	3.49	3.99
Vehicle Expenses	3.93	4.26	4.01	4.64	3.48	4.18	3.85
Feeding Costs	.41	1.34	.95	.85	.56	.30	.36
Veterinary & Medicine	2.72	4.47	3.17	3.73	5.66	2.28	2.17
Building Costs	.50	3.84	4.09	.64	.48	.45	.44
Containers	6.98	.87	.92	.74	1.83	5.24	9.35
Hired Labor							
Interest on Operating Capital	1.15	3.47	1.28	1.08	1.13	.98	1.19
Overhead	3.98	7.71	2.26	4.07	3.12	2.30	4.66
Wintering	1.80	30.74	.80	.90	1.43	.37	2.42
Depreciation	7.43	25.79	18.94	9.65	9.16	5.17	7.52
TOTAL OPERATING COSTS	43.91	136.07	59.68	43.82	45.56	36.27	45.23
Operator Labor	6.63	84.32	20.71	16.15	11.79	6.77	4.36
Family Labor	1.56	2.29	5.54	5.00	1.42	1.96	1.01
Interest on Investment	9.56	26.56	15.92	11.72	13.15	7.98	9.11
TOTAL COSTS	61.67	249.25	101.86	76.68	71.91	52.99	59.72
Return over Cash Costs	22.67	-33.35	39.63	28.56	24.49	26.83	20.58
Return to Unpaid Labor and Management	5.74	-85.71	4.76	7.22	1.69	13.68	3.95
Return to Management	-2.52	-172.32	-21.49	-13.92	-11.51	4.93	-1.42
Return to Investment	6.98	-145.76	-5.57	-2.20	1.64	12.92	7.69

Investment Costs By Size

Investment costs are reflected for each group size by the amount of depreciation indicated under the operating cost section and the interest on investment section (Table 12). Depreciation per pound of honey sold decreased as size of operation increased, and ranged from 25.79 cents per pound for operations with fewer than 10 hives, to 5.17 cents per pound for operations with 700 to 999 hives. Opportunity cost on investment also decreased with increasing size of operation on a per pound of honey basis, and ranged from 26.56 cents for fewer than 10 hives to 7.98 cents for operations with 700 to 999 hives. The size class 700 to 999 hives had the lowest investment costs (that is, interest and depreciation) on a per pound of honey sold basis.

Investment per hive (Table 13) ranged from \$546.58 for apiaries with less than 10 hives, to a low of \$194.75 for operations with 700 to 999 hives. Apiaries with 1000 hives and over had significantly higher building and honey equipment costs (22 per cent) compared to operations in the 700 to 999 hive class. This can be partly justified by the fact that large apiaries purchased equipment such as hive loaders and forklifts in an effort to reduce labor requirements. Detailed investment data are provided for all size classes in the Appendix Section of this report.

Costs of Production By Size

Observation of the operating cost components showed that economies of size were most obvious for labor use. The value of operator, family and hired labor on a per pound of honey basis, ranged from 87.48 cents for operations with less than 10 hives to 13.97 cents for operations with 700 to 999 hives. Vehicle operating expenses also declined on a per pound of honey sold basis as size increased. The average vehicle expenses were 5.87 cents, 5.49 cents and 3.74 cents for operations with fewer than 100 hives, 100 to 699 hives, and over 700 hives, respectively. Building and repair costs also declined with increasing size and were more evident for the two larger size classes averaging 2.23 cents compared to 4.26 cents per pound of honey sold for the four smaller classes. Operating costs per pound of honey sold ranged

TABLE 13: APIARY INVESTMENT BY SIZE OF OPERATION

Size (Hives)	<10	10 - 99	100 - 399	400 - 699	700 - 999	≥1000
	----- \$ Per Hive -----					
Land	17.53	7.11	16.03	14.37	5.23	5.14
Buildings	297.58	98.81	72.76	63.48	33.68	50.24
Honey Equipment	199.58	123.83	153.94	149.05	136.46	158.08
Transportation	31.89	51.52	21.44	37.42	19.38	23.39
TOTAL INVESTMENT	546.58	281.28	264.18	264.32	194.75	236.85

from 136.07 cents for the group with fewer than 10 hives to a low of 36.27 cents for the size class 700 to 999 hives.

Return over cash costs take into account out of pocket costs only, and thus, exclude investment costs and unpaid labor. The range for returns over cash costs per pound of honey was 33.35 cents for the group with fewer than 10 hives to a high of 39.63 cents for the group with 10 to 99 hives. Cash costs must be covered in the short run to make an operation viable. Return over cash costs or the gross cash margin is simply the residual left to pay for the operator's labor and equity on investment items.

The operators with fewer than 10 hives had insufficient returns to cover their investment costs and thus had a negative return to their unpaid labor (Table 12). Depreciation costs and interest on investment for the two smaller groups were significantly higher relative to groups with more than 100 hives. Positive return to management or profit was only experienced by the 700 to 999 hive class. Positive return to investment was only realized by operations with over 400 hives. The highest return to investment was 6.63 per cent for the 700 to 999 hive class.

The 1980 analysis, with respect to economies of size, indicated that the 700 to 999 hive class had the lowest investment costs, operating costs, labor costs and total production cost on a per pound of honey sold basis. Also, the relatively high production of 151.04 pounds per hive was sufficient to yield a profitable return to the apiaries within this class.



SECTION IV

COSTS AND RETURNS FOR HONEY PRODUCTION BY REGION

In order to analyze the economics of honey production by location within the Province, the 69 records obtained were divided into the following groups: Northern Alberta -- 21 records obtained from an area including Edmonton and north but excluding the Peace River Region; Peace River -- 16 records obtained from the Peace River Region; Central Alberta -- 24 records obtained from an area including Calgary and north but south of Edmonton; Southern Alberta -- 8 records obtained from an area south of Calgary. As a result of these groupings, size of operation, production per hive, investment, and costs of production were observed on a regional basis.

Investment Costs by Region

Investment in Capital assets - land, buildings, honey equipment, and transportation vehicles - ranged from a high of \$268.69 per hive in the Peace River Region to a low of \$189.40 per hive in the Southern Region (Table 14). On a per pound of honey sold basis investment ranged from a high of \$2.07 in Central Alberta to \$1.43 in Northern Alberta. Central Alberta apiaries were relatively small in size, averaging 249 hives as compared to the other three regions which averaged over 700 hives per apiary. Although smaller operations are generally criticized for their high investment per unit of production, this was not observed in 1980 as the Peace River Region had the highest investment. On the other hand, the relatively high investment for Central Alberta apiaries coupled with the lower yields resulted in this region having the highest investment per pound of honey sold in Alberta. The effect of economies of size on investment was discussed earlier in Section 111.

INVESTMENT COSTS BY REGION

	Northern Alberta		Peace River	
	\$/Hive	\$/lb Honey	\$/Hive	\$/lb Honey
Land	4.82	0.03	5.56	0.03
Buildings	33.80	0.22	68.61	0.41
Equipment	158.03	1.05	161.50	0.96
Vehicles	20.09	0.13	33.02	0.20
TOTAL	216.74	1.43	268.69	1.60

	Central Alberta		Southern Alberta	
	\$/Hive	\$/lb Honey	\$/Hive	\$/lb Honey
Land	10.24	0.08	2.84	0.02
Buildings	85.04	0.70	30.45	0.24
Equipment	130.48	1.08	136.48	1.07
Vehicles	25.81	0.21	19.63	0.15
TOTAL	251.57	2.07	189.40	1.47

When looking at the components of investment, land and buildings were observed to be the highest on a per hive basis for Central Alberta. Equipment investment was observed to be relatively high for both the Northern and Peace River regions where the average size was 797 and 776 hives, respectively. It should also be noted that honey equipment investment increased with size of operation in an attempt to reduce labor requirements.

Returns From Honey Sales by Region

Returns from honey sales (Table 15) on a per hive basis are related directly to production and also reflect the degree of direct retailing. As mentioned previously, the return per pound of honey generally decreased as size of operation increased. This is particularly true for the apiarists in the Central Region, who are

TABLE 15

SUMMARY OF RETURNS BY REGION

	<u>Northern</u>	<u>Peace River</u>	<u>Central</u>	<u>Southern</u>
Average Number of Hives	797.60	776.90	249.80	713.30
Average Yield Per Hive(lbs)	150.60	167.50	121.10	128.10
	- - - - - \$/Hive - - - - -			
Honey Sold to Co-op/Wholesale	80.20	89.35	55.36	70.68
Honey Sold Retail Level	3.02	4.12	15.19	5.04
Other Honey Sales	2.11	0.69	0.58	0.00
Wax Sales	2.07	3.78	2.65	4.88
Pollen Sales	0.01	0.03	0.00	0.00
TOTAL RETURNS	87.40	97.96	73.78	80.60

relatively smaller in size compared to the other three regions. Their returns per hive from direct retailing, either farm or off-farm, averaged \$15.19 per hive which compares with an average of \$4.06 per hive for the other three regions. Total returns from honey production, however, ranged from \$73.78 per hive in Central Alberta to \$97.96 per hive in the Peace River Region.

Cost of Production By Region

The total operating costs per pound of honey produced ranged from 41.33 cents in Northern Alberta to 48.88 cents in the Peace River Region. Surprisingly, the relatively larger apiarists in the Peace River Region who experienced the highest yield on a regional basis had the highest operating costs (Table 16). They had noticeably higher costs for such items as buildings, containers, hired labor, general overhead, and interest on operating capital. Their cost on a per hive basis was \$81.66 which is well above that for the other regions who averaged \$56.14 per hive. The Peace River apiarists did the least amount of overwintering resulting in an expenditure of \$21.96 per hive

TABLE 16 SUMMARY OF COSTS AND RETURNS BY REGION

	Northern	Peace River	Central	Southern
Number of Hives	797.6	776.9	249.8	713.3
Yield (Pounds/Hive)	150.6	167.5	121.1	128.1
	----- ¢/Pound -----			
Honey Sales	56.67	56.22	58.77	59.12
Wax Sales	1.38	2.26	2.19	3.81
Pollen Sales	0.01	0.02	0.00	0.00
TOTAL RECEIPTS	58.05	58.50	60.96	62.93
Bees and Freight	8.42	13.11	13.79	10.04
Vehicle Expenses	3.55	4.56	4.46	4.71
Feeding Costs	4.41	3.81	3.27	3.25
Veterinary & Medicine	0.33	0.24	0.82	0.80
Building Costs	2.57	3.03	2.54	2.43
Containers	0.39	0.74	0.61	0.06
Hired Labor	7.26	8.56	1.82	6.63
Interest On				
operating Capital	1.08	1.29	1.06	1.06
Overhead	3.64	5.52	3.26	1.45
Wintering	2.79	0.04	2.04	3.16
Depreciation	6.89	7.98	8.87	9.12
TOTAL OPERATING COSTS	41.33	\$62.23/Hive	42.54	\$51.49/Hive
		48.88	\$81.86/Hive	42.71
				\$54.70/Hive
Operator Labor	5.47	4.78	14.47	8.20
Family Labor	1.46	0.84	3.17	2.42
Interest on Investment	8.67	9.75	12.49	8.66
TOTAL COSTS	56.94	\$85.73/Hive	72.67	\$87.96/Hive
		64.26	\$107.61/Hive	61.98
				\$79.38/Hive
Return Over Cash Costs	23.61	17.59	27.29	29.34
Return to Unpaid Labor				
and Management	8.05	-0.13	5.93	11.57
Return to Management	1.11	-5.76	-11.71	0.96
Return to Investment	9.78	3.99	0.78	9.61

for bees and freight, \$7.90 per hive higher than the average for the other three regions.

Total production costs for honey on a per pound of honey sold basis ranged from 56.94 in the Northern Region to 72.67 cents per pound in the Central Region. The value of unpaid labor and interest on investment amounted to 30.13 cents per pound which was significantly higher than the average for the remaining three regions at 16.75 cents per pound. The Central Region had the highest investment costs (interest and depreciation) per pound of honey sold and mainly because of the relatively lower yield. As mentioned earlier, capital investment per hive and investment costs per hive were the highest for the Peace River Region.

In summary, positive returns to management were realized by the apiarists in the Northern and Southern Regions in the order of 1.11 cents and 0.96 cents per pound of honey sold, respectively. Central Alberta apiarists were short 11.71 cents per pound while the Peace River apiarist were short 4.76 cents per pound of covering the total production costs. Peace River apiarists realized a negative return of 0.13 cents per pound to unpaid labor and management while the Northern, Central, and Southern regions had positive returns of 8.05, 5.93 and 11.57 cents, respectively. Northern Alberta apiarists realized the highest return to investment at 6.8 per cent. The highest return over cash costs of 29.34 cents per pound of honey sold was realized by the Southern region.

SECTION V

THE ECONOMICS OF WINTERING BEES

In order to accurately assess the economics of wintering bees versus importing bees, production and financial information for 1980 were recorded for each group separately. Ideally, this analysis should have concentrated in one area of the province where the apiaries were more homogeneous, thereby, excluding other variations that might exist across the province. However, this was not possible due to the insufficient number of apiarists on study in any given region. A total of 45 of the 69 participants providing information relative to 1980 study were involved in this analysis. Nine (9) apiaries were totally wintering operations and these were compared to 36 apiaries that were entirely package bee operations.

Summary of Returns

TABLE 17 RETURNS - PACKAGED BEES VERSUS OVER WINTERING

	<u>Package Bee Apiaries</u>	<u>Wintering Bee Apiaries</u>
Number of Hives	466.25	860.78
Yield (pounds per Hive)	134.36	191.94
	- - - - - ¢/Pound - - - - -	
Honey Sales	57.25	56.20
Wax Sales	2.37	2.06
Pollen Sales	0.01	0.01
TOTAL RECEIPTS	59.63 \$80.12/Hive	58.27 \$111.84/Hive

As indicated in Table 17, returns were significantly higher for the wintering bee operations at \$111.84 per hive when compared to \$80.12 per hive for the package bee operation. This was primarily due to the extreme yield advantage that was observed for the wintering bee

operations in 1980 - 191.94 pounds compared to 134.36 pounds per hive for the packaged bee operations. It should be noted that since the package bee operations were 54 per cent smaller than wintering bee operations, they were able to sell a larger portion of their honey at the retail level, consequently, experiencing a higher price per pound of honey sold.

Investment Costs

The information that follows is a result of analyzing wintering versus importing bee operations. Referring to Table 17 below, the package bee operations on the survey had an average investment of \$247.21 per hive as compared to \$215.92 per hive for the wintering bee

TABLE 18 INVESTMENT COSTS - PACKAGED BEES VERSUS OVER WINTERING

	<u>Package Bee Apiaries</u>		<u>Wintering Bee Apiaries</u>	
	<u>\$/Hive</u>	<u>\$/lb Honey</u>	<u>\$/Hive</u>	<u>\$/lb</u>
Honey				
Land	8.12	0.06	8.48	0.04
Buildings	58.08	0.43	47.73	0.25
Equipment	150.00	1.12	142.60	0.74
Vehicles	31.01	0.23	17.11	0.09
TOTAL	247.21	1.84	215.92	1.12

operations - a difference of 14.5 per cent. Investment in buildings, equipment, and transportation vehicles were all significantly higher than that for the wintering bee operations. Due to the yield difference between the package bee operations and the wintering bee operations, the difference in investment for the two groups is further compounded when expressed on a per pound of honey sold basis. The investment value per pound of honey sold was \$1.84 which is 64 per cent higher than the \$1.12 for the wintering bee operations.

Summary of Production Costs

Table 19 shows a breakdown of costs for the two types of bee operations. The group wintering bees spent 3.35 cents per pound of honey sold or \$6.43 per hive for bee purchases and freight while the package bee operations spent 15.28 cents per pound of honey sold or \$20.54 per hive. The group wintering bees had higher feeding, hired labor, and miscellaneous costs. Total operating costs for the group wintering bees were \$64.78 per hive as compared to \$62.68 per hive for the package bee groups. However, their higher operating costs were more than off-set by the higher production as their operating costs per pound of honey sold was only 33.74 cents as compared to 46.65 cents for the package bee operations. Wintering bee operators also had lower depreciation costs which may result from their significantly larger size.

The group wintering bees had lower unpaid labor costs and interest on investment at \$25.78 per hive versus \$28.50 for the package bee group. Total production costs were \$90.54 and \$91.18 for the wintering and package bee groups, respectively. Expressed on a per pound of honey sold basis, the costs were 47.15 cents for the wintering group and 67.86 cents for the package bee group.

Costs experienced by the wintering bee and package bee groups differed by less than one dollar per hive. However, they are significantly different when production is considered and costs are expressed on a per pound of honey basis. With respect to return to management on a per pound of honey sold basis, a profit for the wintering group of 11.10 cents was realized as compared to a loss of 8.23 cents for the package bee group. Return to investment in 1980 for the wintering group was calculated as 17.97 cents per pound or 16.0 per cent.

TABLE 19

COMPARISON OF COSTS AND RETURNS FOR WINTERING AND
PACKAGE BEE APIARY OPERATIONS - 1980

	<u>Wintering (9 Reports)</u>		<u>Non-Wintering (36 Reports)</u>	
NUMBER OF HIVES	860.78		466.25	
YIELD (POUNDS PER HIVE)	192.00		134.40	
	<u>¢/Pound</u>	<u>\$/Hive</u>	<u>¢/Pound</u>	<u>\$/Hive</u>
RECEIPTS				
Honey Sales	56.21		57.25	
Wax Sales	2.06		2.37	
Pollen Sales	0.01		0.01	
TOTAL RECEIPTS	58.27	111.88	59.63	80.14
OPERATING COSTS				
Bees and Freight	3.35		15.28	
Vehicle Expenses	2.76		4.34	
Feeding Costs	4.80		4.21	
Veterinary & Medicine	0.26		0.53	
Building Costs	1.86		3.59	
Containers	0.38		0.81	
Hired Labor	5.91		4.23	
Interest on Operating Capital	0.89		1.18	
Overhead	2.89		3.76	
Wintering	5.30		-	
Depreciation	5.34		8.72	
TOTAL OPERATING COSTS	33.74	64.78	46.65	62.68
Operator Labor	5.49		7.68	
Family Labor	1.06		2.35	
Interest on Investment	6.87		11.17	
TOTAL COSTS	47.17	90.54	67.86	91.18
Return over Cash Costs	29.88	57.35	21.71	29.16
Return to Unpaid Labor and Management	17.67	33.91	1.80	2.42
Return to Management	11.10	21.31	-8.23	-11.05
Return to Investment	17.97	34.48	2.96	3.97

SECTION VI

COSTS AND RETURNS COMPARISON FOR 1979 AND 1980

Table 20 presents data comparing the 1979 and 1980 study years. As yields differed significantly between the two years, so were the profit levels realized. The average apiary on study in 1979 had 504 hives and an average production of 185 pounds per hive, whereas, the average apiary on study in 1980 with 593 hives had a production of 148 pounds per hive. While honey prices were only slightly higher in 1980 at 59.15 cents compared to 58.7 cents per pound in 1979, returns per hive were almost 20 per cent lower in 1980 at \$87.66 compared to \$108.60 per hive in 1979.

Operating costs in 1980 were higher by 6.6 per cent than the previous year. On a per hive basis, costs were \$65.09 in 1980 while in 1979 it was \$61.05. Noticeable increases were in the areas of vehicle operating costs (19.9 per cent), bees and freight (11.8 per cent), hired labor (14.4 per cent), and feed (26.4 per cent). Depreciation costs per hive were slightly lower in 1980 and can be accounted for by the larger average size apiary that participated in the study in 1980.

The value of unpaid labor increased in 1980 to \$12.24 per hive from \$10.92 per hive in 1979 - an increase of 12.1 per cent. Interest on equipment decreased - from \$18.93 per hive in 1979 to \$14.08 per hive in 1980. As a result, total production costs increased only marginally by 2.3 per cent in 1980 over 1979. Operating costs increased from 32.99 cents in 1979 to 43.91 cents per pound in 1980, a 33.1 per cent increase. Total production costs per pound of honey sold, increased from 48.31 cents in 1979 to 61.67 cents in 1980, an increase of 27.7 per cent.

As a result of the 27.7 per cent increase in production costs and a 0.8 per cent increase in the price of honey sold in 1980, net return to management and investment were drastically reduced. Return to management or profit decreased from 10.38 cents per pound in 1979 to a loss of 2.05 cents per pound in 1980. In addition, return to investment

SUMMARY OF COSTS AND RETURNS

TABLE 20

	1979		1980	
	Group Average		Group Average	
RECEIPTS				
Number of Hives	504.00		592.50	
Yield (Pounds per Hive)	185.00		148.20	
	¢/Pound	\$/Hive	¢/Pound	\$/Hive
Honey Sales	56.32		57.07	
Wax Sales	2.36		2.07	
Pollen Sales	0.02		0.01	
TOTAL RECEIPTS	58.70	108.59	59.15	87.66
OPERATING COSTS				
Bees and Freight	7.78	14.39	10.86	16.09
Vehicle Expenses	2.77		4.15	
Feeding Costs	2.49		3.93	
Veterinary & Medicine	0.49		0.41	
Building Costs	1.77		2.72	
Containers	0.58		0.50	
Hired Labor	4.72	8.73	6.74	9.99
Interest on Operating Capital	0.85		1.15	
Overhead	3.45		3.51	
Wintering	2.44		2.04	
Depreciation	6.10	11.29	7.43	11.01
TOTAL OPERATING COSTS	32.99	61.05	43.44	65.09
Operator Labor	4.24		6.69	
Family Labor	0.85		1.57	
Interest on Investment	10.23	18.93	9.50	14.08
TOTAL COSTS	48.31	89.37	61.20	91.42
Return over Cash Costs	31.81	58.83	22.94	33.61
Return to Unpaid Labor and Management	15.48	28.61	6.21	8.50
Return to Management	10.38	19.22	-2.05	-3.74
Return to Investment	20.61	38.15	7.45	10.35

decreased from \$38.15 per hive or 13.5 per cent in 1979 to \$10.35 per hive or 4.4 per cent in 1980.

Table 21 indicates the effect of yield on the price of honey that was required to cover total costs in 1979 and 1980, while Table 22 indicates the price of honey required to cover various cost components in 1979 and 1980.

TABLE 21 EFFECT OF YIELD ON PRICE PER POUND REQUIRED
TO COVER TOTAL COSTS:

Yield/Hive	Price/lb. To Cover Total Costs
	1979
155	54.82¢
170	49.98¢
185 *	45.93¢
200	42.49¢
215	39.52¢

* Represents group average in 1979.

Yield/Hive	Price/lb. To Cover Total Costs
	1980
100	91.42¢
120	76.18¢
148 *	61.67¢
160	57.14¢
180	50.79¢
200	45.71¢
220	41.55¢

* Represents group average in 1980.

TABLE 22

PRICE OF HONEY REQUIRED TO COVER:

	<u>1979</u>	<u>1980</u>
Cash Costs	26.98¢/lb.	36.48¢/lb.
Depreciation	6.10¢/lb.	7.43¢/lb.
Interest on Investment	10.23¢/lb.	9.50¢/lb.
Operator-Family Labor	5.09¢/lb.	8.26¢/lb.
TOTAL COSTS	48.31¢/lb.	61.67¢/lb.
Less Value of wax and pollen/lb. of honey	2.38¢/lb.	2.08¢/lb.
Value of honey to cover Total Costs	45.93¢/lb.	59.59¢/lb.



SECTION VII

APPENDICES

TABLE: A-1a

APIARY ENTERPRISE INVESTMENT - 1980 (LESS THAN 10 HIVES)				
	Enterprise Value	Years Life	Depreciaton	Interest
Land (A)	55.56	-	-	5.56
TOTAL LAND INVESTMENT	55.56	-	-	5.56
Buildings 1	835.00	28.33	26.52	45.92
Buildings 2	25.00	25.00	0.90	1.37
Buildings 3	83.33	25.00	3.00	4.58
TOTAL BUILDING INVESTMENT	943.33		30.42	51.88
Hives	302.50	16.50	16.50	16.64
Brood Honey	31.67	-	-	3.17
Honey Extractors	101.67	16.00	5.72	5.59
Uncapping Machines	64.04	11.25	5.12	3.52
Honey Tanks and Pipes	16.67	15.00	1.00	0.92
Boiler-Furnace	25.00	15.00	1.50	1.37
Scales	33.33	20.00	1.50	1.83
Hive Feeders	29.00	7.50	3.48	1.59
Lawn Mower	19.33	13.00	1.34	1.06
Miscellaneous Equipment	3.63	19.50	0.17	0.20
Wintering Equipment	5.83	-	2.04	0.27
TOTAL BEE EQUIPMENT	632.67		38.37	36.17
Trans 1 -----	97.50	26.40	27.15	7.52
Trans 2 -----	3.58	20.00	2.50	0.26
TOTAL TRANSPORTATION VEHICLES	101.08		29.65	7.78
TOTAL INVESTMENT	1732.65		98.44	101.39

TABLE: A-1b

SUMMARY OF COSTS AND RETURNS - 1980 (LESS THAN 10 HIVES)

<u>Receipts</u>		
Number of Hives	3.17	
Yield (Pounds per Hive)	120.40	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	75.42	90.90
Wax Sales	1.51	1.82
Pollen Sales	76.93	92.72
<u>Operating Costs</u>		
Bee Purchases	47.64	57.42
Fuel for Vehicles	2.27	2.74
Registration, Insurances	3.67	4.42
Feeding Costs - Honey	3.78	4.55
- Sugar	0.48	0.58
Veterinarian, Medicine	1.34	1.62
Repairs - Hive, Building	4.47	5.39
Containers, Labels, Tags	3.84	4.63
Small Tools, Equipment	2.77	3.33
Yard Rental	1.31	1.58
Subscriptions, Association Dues, etc.	0.66	0.79
Other	2.10	2.53
Miscellaneous - Power	0.87	1.05
Wintering Bees - Honey	3.49	4.21
- Sugar	27.25	32.84
- Hired Labor	0.87	1.05
Interest on Operating Capital(13% for 1/2 year)	3.47	4.18
Depreciation	25.79	31.09
TOTAL OPERATING COSTS	136.07	164.00
Operator Labor - Hive Preparation	21.64	26.08
- Inspect, Feed, Move	22.77	27.45
- Super, Pull Honey	33.21	40.03
- Kill, Return	5.39	6.50
Family Labor - Super, Pull Honey	2.29	2.76
Operator Labor with Wintering Bees	1.31	1.58
Interest on Fixed Investment	26.56	32.02
TOTAL COSTS	249.25	300.41
Return Over Cash Costs	-33.35	-40.20
Return to Unpaid Labor, Management	-85.71	-103.30
Return to Management	-172.32	-107.70
Return to Investment	-145.76	-175.68

TABLE: A-2a

APIARY ENTERPRISE INVESTMENT - 1980 (10 - 99 HIVES)

	Enterprise Value	Years Life	Depreciaiton	Interest
Land (A)	285.58-	-	-	28.56
Land (B)	1.48	-	-	0.15
TOTAL LAND INVESTMENT	287.06		-	28.71
Buildings 1	3215.00	17.83	162.25	176.82
Buildings 2	356.92	22.33	14.38	19.63
Buildings 3	116.92	38.50	2.73	6.43
Buildings 4	218.46	36.00	5.46	12.02
Buildings 5	45.08	21.50	1.89	2.48
Buildings 6	19.23	30.00	0.58	1.06
Buildings 8	15.38	17.50	0.79	0.85
Buildings 9	3.08	14.00	0.20	0.17
TOTAL BUILDING INVESTMENT	3990.07		188.28	219.45
Hives	3231.92	17.73	164.08	177.76
Brood Honey	323.55	-	-	32.36
Honey Extractors	359.04	17.18	18.81	19.75
Dryers	3.08	5.00	0.55	0.17
Uncapping Machines	75.73	13.50	5.05	4.17
Honey Tanks and Pipes	111.77	18.00	5.59	6.15
Pumps and Motors	59.81	20.00	2.69	3.29
Wax Melter	59.98	21.67	2.49	3.30
Boiler-Furnace	31.92	9.75	2.95	1.76
Water System	0.38	10.00	0.03	0.02
Compressor	90.67	27.50	2.97	4.99
Fuel Tank	5.38	20.00	0.24	0.30
Drums	21.38	15.00	1.28	1.18
Pressure Washer	2.69	5.00	0.48	0.15
Blower	23.08	15.00	1.38	1.27
Refractometer	2.31	15.00	0.14	0.13
Scales	74.65	20.89	3.22	4.11
Super Elevator	2.31	10.00	0.21	0.13
Hive Feeders	63.85	12.00	4.79	3.51
Microscope	4.62	10.00	0.42	0.25
Staplers	36.38	25.00	1.31	2.00
Swas, Welder	280.00	20.00	12.60	15.40
Shockers	7.69	6.00	1.15	0.42
Fencer	19.00	11.50	1.49	1.04
Lawn Mower	22.58	9.83	2.07	1.24
Miscellaneous Equipment	48.04	14.50	2.81	2.64
Wintering Equipment	38.46		17.31	2.12
TOTAL BEE EQUIPMENT	5000.27		256.10	289.57
Trans 1 -----	1879.77	7.69	313.40	136.87
Trans 2 -----	195.38	15.50	61.04	14.71
Trans 3 -----	5.38	19.00	1.62	0.38
TOTAL TRANSPORTATION VEHICLES	2080.54		376.06	151.97
TOTAL INVESTMENT	11357.94		820.45	689.70

TABLE: A-2b

SUMMARY OF COSTS AND RETURNS - 1980 (10 - 99 HIVES)

Receipts

Number of Hives	40.38	
Yield (Pounds per Hive)	107.27	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	80.38	84.16
Wax Sales	1.89	2.03
TOTAL RECEIPTS	80.37	86.19
<u>Operating Costs</u>		
Bee Purchases	16.67	17.88
Freight	0.81	0.87
Fuel for Vehicles	3.14	3.36
Repairs for Vehicles	1.31	1.40
Registration, Insurances	1.34	1.44
Feeding Costs - Honey	0.25	0.27
- Sugar	3.56	3.81
- Icing Sugar	0.20	0.21
Cyanogas	0.19	0.20
Bee Repellant	0.09	0.10
Veterinarian, Medicine	0.67	0.72
Repairs - Hive, Building	2.77	2.97
Fuel - Heating	0.30	0.32
Containers, Labels, Tags	4.09	4.39
Small Tools, Equipment	0.37	0.40
Yard Rental	0.45	0.49
Property Tax	0.10	0.10
Business Tax	0.07	0.08
Building & Equipment Insurance	0.10	0.11
Product Insurance	0.04	0.04
Promotion, Advertising, Marketing Fees	0.37	0.40
Subscriptions, Association Dues, etc.	0.39	0.42
Hired Labor - Hive Preparation	0.25	0.27
- Inspecting, Feeding, Moving	0.18	0.19
- Supering, Pull Honey	0.46	0.50
- Kill, Return	0.03	0.03
Miscellaneous - Telephone	0.02	0.02
- Power	0.25	0.27
Wintering Bees - Honey	0.05	0.05
- Sugar	0.75	0.80
Interest on Operating Capital(13% for 1 year)	1.28	1.38
Depreciation	18.94	20.32
TOTAL OPERATING COSTS	59.68	64.00
Operator Labor - Hive Preparation	3.66	3.92
- Inspect, Feed, Move	6.49	6.97
- Super, Pull Honey	9.13	9.79
- Kill, Return	0.96	1.03
Family Labor - Hive Preparation	0.43	0.46
- Inspect, Feed, Move	1.81	1.94
- Super, Pull Honey	3.08	3.31
- Kill, Return	0.22	0.24
Operator Labor with Wintering Bees	0.47	0.51
Interest on Fixed Investment	15.92	17.08
TOTAL COSTS	101.86	109.24
Return Over Cash Costs	39.63	42.50
Return to Unpaid Labor, Management	4.67	5.11
Return to Management	-21.49	-23.05
Return to Investment	-5.57	-5.97

TABLE: A-3a

APIARY ENTERPRISE INVESTMENT - 1980 (100 - 399 HIVES)

	Enterprise Value	Years Life	Depreciaiton	Interest
Land (A)	3862.72	-	-	386.27
TOTAL LAND INVESTMENT	3862.72		-	386.27
Buildings 1	12888.92	24.83	467.11	708.89
Buildings 2	3496.15	20.71	151.90	192.29
Buildings 3	1000.00	23.75	37.89	55.00
Buildings 4	55.77	18.33	2.74	3.07
Buildings 5	38.46	20.00	1.73	2.12
Buildings 6	50.77	50.00	0.91	2.79
TOTAL BUILDING INVESTMENT	17530.03		662.29	964.15
Hives	25888.45	16.33	1426.51	1423.86
Brood Honey	2458.46	-	-	245.85
Honey Extractors	1530.00	23.92	57.56	84.15
Dryers	197.69	14.75	12.06	10.87
Uncapping Machines	1263.85	23.75	46.89	69.51
Honey Tanks and Pipes	477.69	26.40	16.28	26.27
Pumps and Motors	334.73	11.17	26.98	18.41
Wax Melter	394.46	15.56	22.82	21.70
Boiler-Furnace	366.35	13.55	24.34	20.15
Water System	356.15	18.43	17.39	19.59
Compressor	69.23	11.00	5.66	3.81
Fuel Tank	164.19	15.56	9.50	9.03
Drums	162.00	11.50	12.68	8.91
Blower	278.00	10.78	23.21	15.29
Scales	107.46	17.25	5.61	5.91
Hive Loader	400.00	15.40	23.38	22.00
Super Elevator	30.38	20.00	1.37	1.67
Hive Feeders	610.00	10.90	50.37	33.55
Feed Tank	115.00	10.60	9.76	6.32
Microscope	17.31	62.50	0.25	0.95
Staplers	35.12	10.50	3.01	1.93
Saws, Welder	345.77	12.60	24.70	19.02
Shockers	24.62	5.00	4.43	1.35
Fence	162.31	7.67	19.05	8.93
Office Equipment	170.67	15.71	9.77	9.39
Pallets	171.54	10.71	14.41	9.43
Lawn Mower	84.58	7.50	10.15	4.65
Miscellaneous Equipment	738.60	14.45	46.00	40.62
Wintering Equipment	131.92	-	21.71	6.83
TOTAL BEE EQUIPMENT	37086.42		1946.87	2149.96
Trans 1 -----	3317.54	8.31	230.32	257.64
Trans 2 -----	1586.15	6.30	260.93	106.87
Trans 3 -----	249.62	5.50	84.13	14.56
Trans 4 -----	12.69	15.00	-	1.27
TOTAL TRANSPORTATION VEHICLES	5166.00		575.38	380.33
TOTAL INVESTMENT	63645.16		3184.54	3880.72

TABLE: A-3b

SUMMARY OF COSTS AND RETURNS - 1980 (100 - 399 HIVES)

Receipts

Number of Hives	240.92	
Yield (Pounds per Hive)	137.39	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	59.30	81.48
Wax Sales	3.46	4.76
TOTAL RECEIPTS	86.22	62.76
<u>Operating Costs</u>		
Bee Purchases	9.94	13.66
Freight	1.29	1.77
Fuel for Vehicles	3.35	4.60
Repairs for Vehicles	1.92	2.63
Registration, Insurance	1.06	1.45
Feeding Costs - Honey	1.07	1.47
- Sugar	3.49	4.79
- Icing Sugar	0.08	0.11
Cyanogas	0.11	0.15
Bee Repellant	0.08	0.11
Veterinarian, Medicine	0.66	0.91
Repairs - Hive, Buildings	2.23	3.06
Fuel - Heating	0.70	0.96
Containers, Labels, Tags	0.64	0.88
Small Tools, Equipment	0.48	0.66
Yard Rental	0.43	0.59
Weed Control	0.03	0.05
Property Tax	0.54	0.74
Building & Equipment Insurance	0.81	1.11
Promotion, Advertising, Marketing Fees	0.34	0.47
Subscriptions, Assoc. Dues, Meetings, etc.	0.54	0.74
Other	0.60	0.83
Hired Labor - Hive Preparation	0.06	0.08
- Inspect, Feed, Move	0.02	0.02
- Supering, Pull Honey	0.66	0.90
Miscellaneous - Accounting Legal	0.32	0.43
- Office Supplies	0.11	0.15
- Telephone	0.30	0.41
- Power	0.27	0.37
- Fencing	0.08	0.11
- Service Charges	0.02	0.03
Wintering Bees - Honey	0.03	0.04
- Sugar	0.85	1.17
- Icing Sugar	0.01	0.02
- Other	0.01	0.01
Interest on Operating Capital (13% for 1 year)	1.08	1.48
Depreciation	9.62	13.22
TOTAL OPERATION COSTS	43.82	60.20
Operator Labor - Hive Preparation	2.50	3.44
- Inspect, Feed, Move	3.25	4.47
- Super, Pull Honey	8.30	11.40
- Kill, Return	1.64	2.25
Family Labor - Hive Preparation	0.84	1.15
- Inspect, Feed, Move	0.42	0.58
- Super, Pull Honey	3.47	4.76
- Kill, Return	0.27	0.37
Operator Labor with Wintering Bees	0.46	0.63
Interest on Fixed Investment	11.72	16.11
TOTAL COSTS	76.68	105.35
Return Over Cash Costs	28.56	39.24
Return to Unpaid Labor, Management	7.18	9.92
Return to Management	-13.92	-19.13
Return to Investment	-2.20	-3.02

TABLE: A-4a

APIARY ENTERPRISE INVESTMENT - 1980 (400 - 699 HIVES)

	Enterprise Value	Years Life	Depreciatiton	Interest
Land (A)	8112.75	-	-	811.27
TOTAL LAND INVESTMENT	8112.75		-	811.27
Buildings 1	24814.88	24.70	904.19	1364.82
Buildings 2	4409.00	21.89	181.28	242.49
Buildings 3	2185.00	23.50	83.68	120.17
Buildings 4	3374.80	23.00	132.06	185.61
Buildings 5	271.50	22.67	10.78	14.93
Buildings 6	783.00	23.33	30.20	43.06
TOTAL BUILDING INVESTMENT	35838.13		1342.19	1971.10
Hives	60319.97	21.30	2548.73	3317.60
Brood Honey	7519.70	-	-	751.97
Honey Extractors	2595.50	23.20	100.69	142.75
Dryers	277.50	22.25	11.22	15.26
Uncapping Machines	1083.18	16.20	60.18	59.58
Honey Tanks and Pipes	637.00	22.56	25.42	35.03
Pumps and Motors	504.50	11.00	41.28	27.75
Wax Melter	505.00	19.88	22.87	27.77
Boiler-Furnace	770.00	14.50	47.79	42.35
Water System	977.50	23.63	37.24	53.76
Compressor	229.75	10.43	19.83	12.64
Fuel Tank	392.30	21.30	16.58	21.58
Drums	777.27	7.50	93.27	42.75
Pressure Washer	132.00	9.67	12.29	7.26
Blower	301.00	8.57	31.60	16.55
Refractometer	124.30	21.80	5.13	6.84
Scales	496.40	19.63	22.76	27.30
Hive Loader	358.90	13.50	23.93	19.74
Super Elevator	324.50	25.00	11.68	17.85
Hive Feeders	1297.50	9.67	120.80	71.36
Feed Tank	105.00	7.50	12.60	5.77
Microscope	22.50	20.00	1.01	1.24
Staplers	203.00	14.14	12.92	11.16
Saws, Welder	1534.50	13.70	100.81	84.40
Shockers	52.90	7.00	6.80	2.91
Fencer	223.80	10.00	20.14	12.31
Office Equipment	252.00	13.17	17.23	13.86
Pallets	510.00	14.00	32.79	28.05
Lawn Mower	409.80	8.57	43.03	22.54
Miscellaneous Equipment	328.36	10.67	27.71	18.06
Wintering Equipment	890.20	-	154.26	33.82
TOTAL BEE EQUIPMENT	84155.69		3682.58	4951.77
Trans 1 -----	5680.50	9.50	418.79	389.21
Trans 2 -----	6774.00	9.50	522.11	435.33
Trans 3 -----	4043.00	10.13	343.21	226.15
Trans 4 -----	2081.00	10.50	225.34	130.23
Trans 5 -----	2300.00	12.67	102.63	166.38
Trans 6 -----	248.00	3.00	70.00	16.40
TOTAL TRANS. VEHICLES	21126.46		1682.08	1403.71
TOTAL INVESTMENT	149233.00		6706.84	9137.84

TABLE: A-4b

SUMMARY OF COSTS AND RETURNS - 1980 (400 - 699 HIVES)

<u>Receipts</u>		
Number of Hives	564.60	
Yield (Pounds per Hive)	123.12	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	58.65	72.22
Wax Sales	1.74	2.14
TOTAL RECEIPTS	60.40	74.36
Bee Purchases	12.54	15.43
Freight	1.03	1.27
Fuel for Vehicles	2.04	2.51
Repairs for Vehicles	1.72	2.11
Registration, Insurance	0.61	0.75
Cargo Insurance	0.28	0.34
Feeding Costs - Honey	0.06	0.08
- Sugar	3.36	4.14
- Icing Sugar	0.05	0.06
- Other	0.01	0.02
Cyanogas	0.05	0.06
Bee Repellant	0.08	0.09
Veterinarian, Medicine	0.43	0.53
Repairs - Hive, Buildings	4.13	5.08
Fuel - Heating	0.88	1.08
Containers, Labels, Tags	0.48	0.60
Small Tools, Equipment	0.62	0.76
Yard Rental	0.60	0.74
Week Control	0.03	0.04
Property Tax	0.17	0.21
Business Tax	0.01	0.01
Labor Insurance, Benefits	0.24	0.29
Building & Equipment Insurance	0.65	0.80
Product Insurance	0.07	0.09
Promotion, Advertising, Marketing Fees	0.15	0.19
Subscriptions, Assoc. Dues, Meetings	0.20	0.24
Other	0.56	0.69
Hired Labor - Hive Preparation	0.06	0.07
- Inspect, Feed, Move	0.01	0.01
- Supering, Pull Honey	1.20	1.48
- Kill, Return	0.32	0.39
Miscellaneous - Accounting, Legal	0.06	0.08
- Office Supplies	0.02	0.02
- Telephone	0.13	0.16
- Power	0.33	0.40
- Fencing	0.01	0.02
- Service Charges	0.16	0.20
Wintering Bees - Honey	0.11	0.13
- Sugar	1.28	1.58
- Other	0.04	0.05
Interest on Operating Capital(13% for 1year)	1.13	1.39
Depreciation	9.65	11.88
TOTAL OPERATING COSTS	45.56	56.09
Operator Labor - Hive Preparation	1.53	1.88
- Inspect, Feed, Move	1.94	2.38
- Super, Pull Honey	4.91	6.05
- Kill, Return	0.92	1.13
Family Labor - Hive Preparation	0.16	0.20
- Inspect, Feed, Move	0.17	0.20
- Super, Pull Honey	1.02	1.26
- Kill, Return	0.07	0.09
Operator Labor with Wintering Bees	2.49	3.06
Interest of Fixed Investment	13.15	16.18
TOTAL COSTS	71.91	88.53

TABLE: A-5a

APIARY ENTERPRISE INVESTMENT - 1980 (700 - 999 HIVES)

	Enterprise Value	Years Life	Depreciaiton	Interest
Land (A)	4016.00	-	-	401.60
TOTAL LAND INVESTMENT	4016.00		-	401.60
Buildings 1	13175.00	30.56	388.06	724.62
Buildings 2	6155.00	29.29	189.15	338.52
Buildings 3	5570.00	27.00	185.67	306.35
Buildings 4	750.00	26.67	25.31	41.25
Buildings 5	50.00	5.00	9.00	2.75
Buildings 6	150.00	20.00	6.75	8.25
TOTAL BUILDING INVESTMENT	25849.95		803.95	1421.75
Hives	77140.00	24.00	2892.75	4242.70
Brood Honey	10209.62	-	-	1020.96
Honey Extractors	4410.00	21.00	189.00	242.55
Dryers	1310.00	18.75	62.88	72.05
Uncapping Machines	854.50	12.83	59.93	47.00
Honey Tanks and Pipes	822.50	20.60	35.93	45.24
Pumps and Motors	497.50	14.50	30.88	27.36
Wax Melter	445.00	15.71	25.49	24.47
Boiler-Furnace	675.00	16.25	37.38	37.12
Water System	803.65	22.57	32.04	44.20
Compressor	238.95	14.29	15.05	13.14
Fuel Tank	232.60	23.90	8.76	12.79
Drums	953.00	5.43	158.00	52.41
Pressure Washer	47.45	15.00	2.85	2.61
Blower	272.00	7.86	31.16	14.96
Refractometer	34.10	12.50	2.46	1.88
Scales	348.50	18.75	16.73	19.17
Hive Loader	689.00	16.67	37.21	37.89
Super Elevator	167.50	19.00	7.93	9.21
Hive Feeders	753.00	15.56	43.57	41.41
Feed Tank	186.00	20.83	8.04	10.23
Microscope	24.00	25.00	0.86	1.32
Staplers	89.10	24.17	3.32	4.90
Saws, Welder	1089.30	15.40	63.66	59.91
Shockers	232.00	5.50	37.96	12.76
Fencer	146.11	20.00	6.57	8.04
Office Equipment	280.00	17.00	14.82	15.40
Pallets	748.25	10.78	62.48	41.15
Lawn Mower	207.90	8.33	22.45	11.43
Miscellaneous Equipment	685.00	15.25	40.43	37.67
Wintering Equipment	144.00	-	21.79	7.37
TOTAL BEE EQUIPMENT	104735.37	-	3972.38	6219.38
Trans 1 -----	6518.00	5.78	473.88	525.91
Trans 2 -----	4736.00	6.40	339.84	379.01
Trans 3 -----	2139.00	5.00	326.00	171.48
Trans 4 -----	944.00	6.67	61.80	82.84
Trans 5 -----	465.00	10.00	-	46.50
Trans 6 -----	70.00	5.00	14.00	3.50
TOTAL TRANS. VEHICLES	14871.96		1215.53	1209.24
TOTAL INVESTMENT	149473.25		5991.85	9251.86

SUMMARY OF COSTS AND RETURNS - 1980 (700 - 999 HIVES)Receipts

Number of Hives	767.50	
Yield (Pounds per Hive)	151.04	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	56.1	84.73
Wax Sales	1.80	2.72
TOTAL RECEIPTS	57.93	87.49
Bee Purchases	10.37	15.66
Freight	1.14	1.71
Fuel for Vehicles	1.81	2.74
Repairs for Vehicles	1.30	1.96
Registration, Insurance	0.36	0.54
Cargo Insurance	0.02	0.03
Feeding Costs - Honey	0.15	0.22
- Sugar	3.92	5.92
- Icing Sugar	0.03	0.05
- Other	0.08	0.12
Cyanogas	0.07	0.10
Bee Repellant	0.06	0.08
Veterinarian, Medicine	0.17	0.26
Repairs - Hive, Buildings	1.23	1.86
Fuel - Heating	0.32	0.49
Containers, Labels, Tags	0.45	0.67
Small Tools, Equipment	0.30	0.46
Yard Rental	0.66	1.00
Weed Control	0.00	0.01
Property Tax	0.07	0.11
Business Tax	0.03	0.04
Labor Insurance, Benefits	0.20	0.30
Building & Equipment Insurance	0.73	1.10
Promotion, Advertising, Marketing Fees	0.09	0.14
Subscriptions, Assoc. Dues, Meetings	0.12	0.18
Other	0.25	0.38
Hired Labor - Hive Preparation	0.54	0.82
- Inspect, Feed, Move	0.83	1.25
- Supering, Pull Honey	2.82	4.26
- Kill, Return	0.72	1.08
Miscellaneous - Accounting, Legal	0.20	0.30
- Office Supplies	0.01	0.02
- Telephone	0.19	0.29
- Power	0.32	0.49
- Fencing	0.02	0.03
- Service Charges	0.04	0.06
Wintering Bees - Honey	0.15	0.23
- Sugar	0.22	0.33
- Hired Labor	0.13	0.19
Interest on Operating Capital(13% for 1year)	0.98	1.48
Depreciation	5.17	7.81
TOTAL OPERATING COSTS	36.27	54.78
Operator Labor - Hive Preparation	1.20	1.81
- Inspect, Feed, Move	1.55	2.35
- Super, Pull Honey	3.03	4.58
- Kill, Return	0.88	1.33
Family Labor - Hive Preparation	0.24	0.37
- Inspect, Feed, Move	0.31	0.47
- Super, Pull Honey	1.28	1.94
- Kill, Return	0.13	0.20
Operator Labor with Wintering Bees	0.11	0.16
Interest of Fixed Investment	7.98	12.05
TOTAL COSTS	52.99	80.04
Return Over Cash Costs	26.83	40.52
Return to Unpaid Labor, Management	13.68	20.66
Return to Management	4.93	7.45
Return to Investment	12.92	19.51

APIARY ENTERPRISE INVESTMENT - 1980 (Over 1000 HIVES)

	Enterprise Value	Years Life	Depreciatiton	Interest
Land (A)	8769.38	-	-	876.94
TOTAL LAND INVESTMENT	8769.38	-	-	876.94
Buildings 1	29633.84	21.71	1228.24	1629.86
Buildings 2	12571.41	20.67	547.56	691.43
Buildings 3	5930.36	14.00	381.24	326.17
Buildings 4	12248.20	16.00	688.96	673.65
Buildings 5	16200.00	19.17	760.70	896.00
Buildings 6	8755.00	21.00	375.21	481.52
Buildings 7	357.14	10.00	32.14	19.64
TOTAL BUILDING INVESTMENT	85695.87		4013.96	4713.27
Hives	196621.56	18.43	9602.45	10814.18
Brood Honey	21397.85	-	-	2139.78
Honey Extractors	7437.50	19.21	76.59	89.93
Dryers	967.86	17.00	51.24	53.23
Uncapping Machines	1259.36	15.08	75.14	69.26
Honey Tanks and Pipes	1635.14	19.21	76.59	89.93
Pumps and Motors	1745.64	10.38	151.29	96.01
Wax Melter	1144.29	17.08	60.31	62.94
Boiler-Furnace	2722.21	16.57	147.84	149.72
Water System	1503.71	21.44	63.11	82.70
Compressor	275.36	10.92	22.70	15.14
Fuel Tank	587.57	19.58	27.00	32.32
Drums	1758.57	9.82	161.20	96.72
Pressure Washer	480.36	9.14	47.29	26.42
Blower	282.86	8.11	31.39	15.56
Refractometer	132.86	17.50	6.83	7.31
Scales	477.71	17.42	24.69	26.27
Hive Loader	2910.71	14.38	182.24	160.09
Super Elevator	328.57	14.83	19.94	18.07
Hive Feeders	2993.78	9.58	281.16	164.66
Feed Tank	940.00	15.17	55.78	51.70
Microscope	189.79	20.40	8.37	10.44
Staplers	192.64	11.40	15.21	10.60
Saws, Welder	1448.79	14.36	90.82	79.68
Shockers	799.29	10.57	68.05	43.96
Fencer	611.79	8.43	65.33	33.65
Office Equipment	785.29	14.08	50.21	43.19
Pallets	6221.86	10.93	512.39	342.20
Lawn Mower	789.74	14.64	48.56	43.44
Miscellaneous Equipment	8208.93	11.00	671.64	451.49
Other	475.71	15.00	28.54	26.16
Wintering Equipment	2307.14	-	131.05	126.89
TOTAL BEE EQUIPMENT	269631.75		13126.65	15792.73
Trans 1 -----	9346.86	9.14	466.61	721.38
Trans 2 -----	7685.71	8.57	505.42	570.97
Trans 3 -----	5068.57	8.21	413.04	365.57
Trans 4 -----	4461.07	7.40	321.09	357.62
Trans 5 -----	6900.00	9.11	541.33	462.36
Trans 6 -----	1647.57	10.00	175.14	90.13
Trans 7 -----	4785.71	12.00	395.83	241.07
TOTAL TRANS. VEHICLES	39895.47		2818.46	2809.10
TOTAL INVESTMENT	403992.44		19959.06	24192.03

SUMMARY OF COSTS AND RETURNS - 1980 (OVER 1000 HIVES)Receipts

Number of Hives	1705.71	
Yield (Pounds per Hive)	155.66	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	56.26	87.58
Wax Sales	2.03	3.15
Pollen Sales	-	0.01
TOTAL RECEIPTS	58.29	90.74
Bee Purchases	8.54	13.29
Freight	0.74	1.15
Fuel for Vehicles	1.60	2.49
Repairs for Vehicles	1.69	2.63
Registration, Insurance	0.54	0.84
Cargo Insurance	0.16	0.24
Feeding Costs - Honey	0.83	1.29
- Sugar	2.88	4.48
- Icing Sugar	0.02	0.04
- Other	0.12	0.18
Cyanogas	0.03	0.05
Bee Repellant	0.18	0.27
Veterinarian, Medicine	0.15	0.24
Repairs - Hive, Buildings	1.21	1.89
Fuel - Heating	0.56	0.87
Containers, Labels, Tags	0.44	0.69
Small Tools, Equipment	0.20	0.32
Yard Rental	0.88	1.36
Weed Control	0.05	0.08
Property Tax	0.05	0.08
Business Tax	-	0.01
Labor Insurance, Benefits	0.46	0.72
Building & Equipment Insurance	0.40	0.62
Product Insurance	0.04	0.07
Promotion, Advertising, Marketing Fees	0.89	1.38
Subscriptions, Assoc. Dues, Meetings	0.45	0.70
Other	0.76	1.18
Hired Labor - Hive Preparation	1.20	1.86
- Inspect, Feed, Move	1.28	1.99
- Supering, Pull Honey	4.64	7.22
- Kill, Return	1.38	2.15
Miscellaneous - Accounting, Legal	0.44	0.69
- Office Supplies	0.06	0.10
- Telephone	0.24	0.38
- Power	0.48	0.75
- Service Charges	-	0.01
- Other	0.12	0.19
Wintering Bees - Honey	0.38	0.59
- Sugar	2.03	3.15
- Icing Sugar	0.01	0.02
- Hired Labor	0.39	0.61
Interest on Operating Capital(13% for 1 year)	1.19	1.85
Depreciation	7.52	11.70
TOTAL OPERATING COSTS	45.23	70.40
Operator Labor - Hive Preparation	0.92	1.44
- Inspect, Feed, Move	1.22	1.90
- Super, Pull Honey	1.27	1.98
- Kill, Return	0.78	1.22
Family Labor - Hive Preparation	0.22	0.34
- Inspect, Feed, Move	0.31	0.49
- Super, Pull Honey	0.31	0.48
- Kill, Return	0.17	0.27
Operator Labor with Wintering Bees	0.17	0.26
Interest of Fixed Investment	9.11	14.18
TOTAL COSTS	59.72	92.95
Return Over Cash Costs	20.58	32.04
Return to Unpaid Labor, Management	3.95	6.16
Return to Management	-1.42	-2.21
Return to Investment	7.69	11.97

APIARY ENTERPRISE INVESTMENT - 1980 (WINTERING)

	Enterprise Value	Years Life	Depreciatiton	Interest
Land (A)	7296.17	-	-	729.62
TOTAL LAND INVESTMENT	7296.17		-	729.62
Buildings 1	34473.75	24.44	1269.26	1896.06
Buildings 2	4555.55	20.00	205.00	250.56
Buildings 3	1533.33	18.33	75.27	84.33
Buildings 4	55.56	22.50	2.22	3.06
Buildings 5	226.67	25.00	8.16	12.47
Buildings 6	238.89	30.00	7.17	13.14
TOTAL BUILDING INVESTMENT	41083.72		1567.08	2259.61
Hives	87406.19	16.88	4661.66	4807.34
Brood Honey	9305.55	-	-	930.56
Honey Extractors	2325.00	18.75	111.60	127.87
Dryers	483.33	15.00	29.00	26.58
Uncapping Machines	987.33	14.00	63.47	54.30
Honey Tanks and Pipes	658.00	19.17	30.90	36.19
Pumps and Motors	1939.33	10.29	169.69	106.66
Wax Melter	802.22	13.50	53.48	44.12
Boiler-Furnace	704.44	17.86	35.50	38.74
Water System	2142.44	21.25	90.74	117.83
Compressor	91.67	10.50	7.86	5.04
Fuel Tank	250.67	16.67	13.54	13.79
Drums	176.11	14.75	10.75	9.69
Pressure Washer	166.67	10.00	15.00	9.17
Blower	152.78	7.60	18.09	8.40
Refractometer	90.00	18.00	4.50	4.95
Scales	135.22	15.63	7.79	7.44
Hive Loader	550.00	16.25	30.46	30.25
Super Elevator	102.78	16.00	5.78	5.65
Hive Feeders	2411.11	10.63	204.24	132.61
Feed Tank	966.67	16.60	52.41	53.17
Microscope	223.00	18.00	11.15	12.26
Staplers	80.22	14.20	5.08	4.41
Saws, Welder	1153.11	15.38	67.50	63.42
Shockers	661.11	9.20	64.67	36.36
Fencer	432.78	8.60	45.29	23.80
Office Equipment	279.33	14.83	16.95	15.36
Pallets	839.00	12.86	58.73	46.14
Lawn Mower	343.88	21.57	14.35	18.91
Miscellaneous Equipment	4215.11	20.50	185.05	231.83
Other	666.67	25.00	24.00	36.67
Wintering Equipment	2001.56	-	417.63	110.09
TOTAL BEE EQUIPMENT	122743.12		6526.79	7169.56
Trans 1 -----	5739.11	13.44	68.84	528.60
Trans 2 -----	3727.94	12.44	116.96	307.59
Trans 3 -----	2655.55	7.00	276.98	195.13
Trans 4 -----	1538.89	10.00	131.83	87.97
Trans 5 -----	622.22	9.33	107.74	36.97
Trans 6 -----	222.22	10.00	16.67	13.89
Trans 7 -----	222.22	10.00	16.67	13.89
TOTAL TRANS. VEHICLES	14728.14		735.70	1184.05
TOTAL INVESTMENT	185851.12		8829.56	11342.83

TABLE: A-/b

SUMMARY OF COSTS AND RETURNS - 1980 (WINTERING)

Receipts

Number of Hives	860.78	
Yield (Pounds per Hive)	191.94	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	56.20	119.73
Wax Sales	2.06	3.95
Pollen Sales	0.01	0.02
TOTAL RECEIPTS	58.27	111.85
Bee Purchases	2.64	5.06
Freight	0.71	1.36
Fuel for Vehicles	0.98	1.88
Repairs for Vehicles	1.09	2.09
Registration, Insurance	0.37	0.72
Cargo Insurance	0.32	0.62
Feeding Costs - Honey	1.48	2.84
- Sugar	3.28	6.29
- Icing Sugar	0.03	0.06
- Other	0.01	0.01
Cyanogas	0.01	0.03
Bee Repellent	0.04	0.08
Veterinarian, Medicine	0.21	0.40
Repairs - Hive, Buildings	1.14	2.19
Fuel - Heating	0.43	0.82
Containers, Labels, Tags	0.38	0.73
Small Tools, Equipment	0.25	0.49
Yard Rental	0.77	1.47
Property Tax	0.05	0.10
Labor Insurance, Benefits	0.27	0.51
Building & Equipment Insurance	0.29	1.55
Promotion, Advertising, Marketing Fees	0.46	0.88
Subscriptions, Assoc. Dues, Meetings	0.82	1.57
Other	0.08	0.15
Hired Labor - Hive Preparation	0.71	1.36
- Inspect, Feed, Move	1.01	1.94
- Supering, Pull Honey	3.30	6.34
- Kill, Return	0.62	1.20
Miscellaneous - Accounting, Legal	0.20	0.38
- Office Supplies	0.01	0.01
- Telephone	0.14	0.26
- Power	0.11	0.21
- Service Charges	-	0.01
Wintering Bees - Honey	0.95	1.82
- Sugar	3.75	7.20
- Icing Sugar	0.03	0.07
- Hired Labor	0.57	1.09
Interest on Operating Capital(13% for 1year)	0.89	1.72
Depreciation	5.34	10.26
TOTAL OPERATING COSTS	33.74	64.76
Operator Labor - Hive Preparation	1.02	1.97
- Inspect, Feed, Move	1.45	2.79
- Super, Pull Honey	1.68	3.23
- Kill, Return	1.04	2.00
Family Labor - Hive Preparation	0.23	0.44
- Inspect, Feed, Move	0.22	0.43
- Super, Pull Honey	0.61	1.16
Operator Labor with Wintering Bees	0.30	0.58
Interest of Fixed Investment	6.87	13.18
TOTAL COSTS	47.17	90.54
Return Over Cash Costs	29.88	57.35
Return to Unpaid Labor, Management	17.67	333.91
Return to Management	11.10	21.31
Return to Investment	17.97	34.48

TABLE: A-8a

APIARY ENTERPRISE INVESTMENT - 1980 (NON-WINTERING)

	Enterprise Value	Years Life	Depreciatiton	Interest
Land (A)	3783.54	-	-	378.35
Land (B)	0.19	-	-	0.02
TOTAL LAND INVESTMENT	3784.73		-	378.37
Buildings 1	12629.98	22.69	501.06	694.65
Buildings 2	5828.89	22.76	230.49	320.59
Buildings 3	2198.47	26.22	75.46	120.92
Buildings 4	4341.39	23.00	169.88	238.78
Buildings 5	1261.53	15.57	72.91	69.38
Buildings 6	680.00	22.14	27.64	37.40
Buildings 7	138.89	10.00	12.50	7.64
Buildings 8	1.39	15.00	0.08	0.08
TOTAL BUILDING INVESTMENT	27080.47		1090.03	1489.43
Hives	50992.48	19.91	2304.54	2304.59
Brood Honey	6136.64	-	-	613.66
Honey Extractors	1774.44	21.11	75.65	97.59
Dryers	443.75	19.92	20.05	24.41
Uncapping Machines	1019.38	17.27	53.13	56.07
Honey Tanks and Pipes	531.53	22.67	21.10	29.23
Pumps and Motors	352.12	11.27	28.12	19.37
Wax Melter	519.58	17.46	26.79	28.58
Boiler-Furnace	432.85	14.71	26.48	23.81
Water System	401.85	22.20	16.29	22.10
Compressor	168.39	12.00	12.63	9.26
Fuel Tank	242.68	21.48	10.17	13.35
Drums	668.30	8.40	71.60	36.76
Pressure Washer	152.21	8.67	15.81	8.37
Blower	176.25	8.00	19.83	9.69
Refractometer	55.94	19.33	2.60	3.08
Scales	348.76	20.42	15.37	19.18
Hive Loader	907.75	17.45	46.81	49.93
Super Elevator	120.00	22.80	4.74	6.60
Hive Feeders	846.89	10.38	73.40	46.58
Feed Tank	142.64	12.25	10.48	7.85
Microscope	7.92	15.00	0.47	0.44
Staplers	101.83	15.11	6.07	5.60
Saws, Welder	724.42	14.27	45.69	39.84
Shockers	225.25	8.00	25.34	12.39
Fencer	178.50	12.50	12.85	9.82
Office Equipment	248.75	12.81	17.47	13.68
Pallets	473.40	11.67	36.52	26.04
Lawn Mower	273.44	7.47	32.93	15.04
Miscellaneous Equipment	1249.84	11.95	94.13	68.74
Other	18.33	5.00	3.30	1.01
TOTAL BEE EQUIPMENT	69935.94		3130.36	4122.63
Trans 1 -----	5410.52	75.0	445.19	402.94
Trans 2 -----	3653.33	7.65	349.39	260.84
Trans 3 -----	1474.30	8.38	144.49	106.55
Trans 4 -----	956.53	8.70	71.58	79.51
Trans 5 -----	1052.78	10.86	71.64	69.24
Trans 6 -----	105.00	6.50	31.62	5.87
Trans 7 -----	1805.55	14.00	128.97	90.28
TOTAL TRANS. VEHICLES	14457.99		1242.88	1015.25
TOTAL INVESTMENT	115258.06		5463.27	7005.67

TABLE: A-8b

SUMMARY OF COSTS AND RETURNS - 1980 (NON-WINTERING)

Receipts

Number of Hives	466.25	
Yield (Pounds per Hive)	134.36	
	<u>Cents/Pound</u>	<u>Dollars/Hive</u>
Honey Sales	57.25	76.92
Wax Sales	2.37	3.18
Pollen Sales	0.01	0.02
TOTAL RECEIPTS	59.63	80.12
Bee Purchases	13.93	18.71
Freight	1.35	1.82
Fuel for Vehicles	2.13	2.86
Repairs for Vehicles	1.47	1.98
Registration, Insurance	0.61	0.82
Cargo Insurance	0.13	0.18
Feeding Costs - Honey	0.59	0.79
- Sugar	3.33	4.48
- Icing Sugar	0.06	0.08
- Other	0.23	0.31
Cyanogas	0.10	0.14
Bee Repellant	0.14	0.19
Veterinarian, Medicine	0.29	0.39
Repairs - Hive, Buildings	2.21	2.97
Fuel - Heating	0.68	0.91
Containers, Labels, Tags	0.81	1.09
Small Tools, Equipment	0.36	0.48
Yard Rental	0.70	0.94
Weed Control	0.02	0.03
Property Tax	0.12	0.16
Business Tax	0.02	0.03
Labor Insurance, Benefits	0.31	0.42
Building & Equipment Insurance	0.70	0.94
Product Insurance	0.07	0.10
Promotion, Advertising, Marketing Fees	0.16	0.22
Subscriptions, Assoc. Dues, Meetings	0.30	0.40
Other	0.71	0.95
Hired Labor - Hive Preparation	0.39	0.52
- Inspect, Feed, Move	0.72	0.97
- Supering, Pull Honey	2.11	2.84
- Kill, Return	0.70	0.95
Miscellaneous - Accounting, Legal	0.30	0.41
- Office Supplies	0.06	0.09
- Telephone	0.27	0.36
- Power	0.41	0.55
- Fencing	0.02	0.03
- Service Charges	0.02	0.03
- Other	0.20	0.28
Interest on Operating Capital(13% for 1year)	1.19	1.60
Depreciation	8.72	11.72
TOTAL OPERATING COSTS	46.65	62.68
Operator Labor - Hive Preparation	1.39	1.86
- Inspect, Feed, Move	1.77	2.38
- Super, Pull Honey	3.31	4.44
- Kill, Return	1.21	1.63
Family Labor - Hive Preparation	0.32	0.43
- Inspect, Feed, Move	0.46	0.62
- Super, Pull Honey	1.33	1.79
- Kill, Return	0.24	0.32
Interest of Fixed Investment	11.18	15.03
TOTAL COSTS	67.86	91.18
Return Over Cash Costs	21.71	29.16
Return to Unpaid Labor, Management	1.80	2.42
Return to Management	-8.23	-11.05
Return to Investment	2.96	3.97



